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EXCESS CAPACITY AND IMPERFECT COMPETITION

By F. H. HAHN

1. In a recent article in this journal[1] Professor Hicks has re-examined some orthodox conclusions of Imperfect Competition Theory in the light of Mr. Harrod's recent re-appraisal.[2] In doing so he distinguishes between two periods: the closed period when the number of competitors remains the same and the open period when the number and kind of competitors may change. An entrepreneur entering the industry is assumed to take decisions of (*a*) how much to produce in each of these periods, and (*b*) on what 'scale' to produce. Various possible outcomes are classified by the type of expectations and the type of entrepreneur.

In reading Professor Hicks's important contribution I felt the desire to attempt an extension of his analysis in order to examine some of Mr. Harrod's objections to orthodoxy a little further. It soon emerged, however, that the Hicksian model did not lend itself easily to this purpose, firstly because there is a rather important slip in the analysis and secondly because the model does not carry the story far enough into Harrodian territory. In particular, Mr. Harrod's 'entrepreneurial ritual' finds no place in the Hicksian cosmos. Since what follows was directly inspired by Professor Hicks's article, we shall first re-examine his model, and then proceed, with what we have learned, to discuss Mr. Harrod's proposition. This I define as follows: the fact that the demand curve facing a unit of supply is downwards-sloping is not a sufficient condition for the emergence of excess capacity even if the unit of supply has polypolistic expectations.

2. Since we are concerned with excess capacity, it will be convenient to define this term right at the outset. We shall distinguish between three kinds of excess capacity:

(*a*) Orthodox Excess Capacity is said to exist if long-run average costs are diminishing at that output at which the given equipment (scale) enables that output to be produced at lowest average cost.

(*b*) Transitional Excess Capacity is said to exist if the given equipment (scale) exceeds that at which the contemplated output(s) could be produced at lowest average cost.

(*c*) Dynamic Excess Capacity is said to exist if the given equipment (scale) is larger than it would have been had the future been correctly foreseen.

[1] J. R. Hicks, 'The Process of Imperfect Competition', *Oxford Economic Papers* (New Series), vol. vi, no. 1, Feb. 1954.

[2] R. F. Harrod, 'Theory of Imperfect Competition Revised', in *Economic Essays*, 1952.

These definitions are unfortunately a little clumsy. The reason for putting them forward in this way is the following: Mr. Harrod is interested in situations in which the scale of production planned is not related to a single, but to a number of possible, contemplated outputs. In other words we shall wish to investigate situations where the position of the demand curve is not exactly known. We cannot therefore define excess capacity with reference to a single output. Thus, for instance, instead of defining orthodox excess capacity as existing when at the given output, the short-run average cost curve is tangential to a downward sloping long-run average cost curve, we say that this kind of excess capacity exists, if at a hypothetical cost minimizing output (with given equipment) long-run average costs are declining.

In the definitions we speak of scale, or size of equipment. The exact way of giving some measure to these concepts will be discussed presently.

3. We shall now restate the Hicksian model (H.M.) with some slight modifications. It is clear that some concept of utility maximization is implicit in H.M. For reasons which will become obvious later, we shall make this assumption explicit. No difference whatsoever is thereby made to H.M.

The notation is the same as in H.M. Capital letters stand for open-period and small letters for closed-period, variables, and functions. Thus, x, X are outputs, c, C are costs, r, R are revenues. Professor Hicks defines four functions:

$$c = c(x, X), \tag{3.1}$$

$$C = C(X), \tag{3.2}$$

$$R = R(x, X), \tag{3.3}$$

$$r = r(x). \tag{3.4}$$

The exact meaning of these will be discussed shortly. Let

$$g = r(x) - c(x, X), \tag{3.5}$$

$$G = R(x, X) - C(X), \tag{3.6}$$

and interpret g as closed-period and G as open-period profit. There are two unknowns, x and X. Solve for these by maximizing

$$U = U(g, G), \tag{3.7}$$

the utility function of the entrepreneur. This gives us two equations:

$$U_g(r_x - c_x) + U_G R_x = 0, \tag{3.8}$$

$$U_g(-c_X) + U_G(R_X - c_X) = 0. \tag{3.9}$$

These two equations are in all respects similar to those of H.M. ($U_g = l$, $U_G = m$, in H.M.). Subscripts denote partial differentiation.

4. It will have been noticed that at present the definition of G is ambiguous. It might be legitimately asked why not, instead of 3.6, write

$$G = R(x, X) - c(x, X). \tag{4.1}$$

The same question might be put slightly differently: are there not three rather than two unknowns to the problem, namely x, X, and the scale of production? Professor Hicks, aware of these difficulties, has resolved them as follows. He writes: '... we are making the usual Marshallian assumption that the size of the plant is determined by long-period output only.'[1] Thus the third unknown is not determined analytically but by an extraneous assumption. This explains 3.1, for X really becomes an index of 'scale' and enters in a unique way into $c(\ \ )$. But this assumption has some rather curious consequences.

5. Consider 3.9. The equilibrium condition described by this equation is quite general. Let us therefore assume $x > X$, $U_g > 0$, $U_G > 0$. By the Marshallian assumptions short-run and long-run average costs are equal for output X. Since the long-run average cost curve is the envelope of the short-run average cost curves, it follows that at output x, short-run average cost is greater than long-run average cost. For the same reason (since $x > X$) an increase in scale would reduce the cost of producing x, i.e. $c_X < 0$. From our assumptions and 3.9 it must then be true that $R_X < C_X$. Now C_X is the long-run marginal cost of producing X. Again by the Marshallian assumptions this long-run marginal cost must equal the short-run marginal cost of producing X.[2] Hence 3.9 tells us that open-period marginal revenue is less than short-run marginal cost in the open period.

But this cannot be so. For our producer could, without changing scale, i.e. without affecting closed-period profits, find a position in the open period

[1] J. R. Hicks, op. cit. It should here be noted that Professor Hicks's justifications for this assumption, namely that the life of equipment is long and *hence* will be determined by long period considerations, cannot be used in his model. For by the same argument the entrepreneur should only be interested in long period profit, i.e. be a perfect sticker.

[2] If K is long-period and k short-period total cost, then at X, by the Marshallian assumption,

$$\frac{\delta(K/X)}{\delta X} = \frac{\delta(k/X)}{\delta X}; \qquad k = K \tag{1}$$

$$\therefore\ X\frac{\delta K}{\delta X} - K = X\frac{\delta k}{\delta x} - k \tag{2}$$

$$\therefore\ \frac{\delta K}{\delta X} = \frac{\delta k}{\delta X}. \tag{3}$$

where short-run marginal cost is equal to open-period marginal revenue, and thus increase his open-period profits without reducing closed period profits. On any definition of the utility function he will do so.

Thus Professor Hicks's assumption leads to the conclusion that the producer will prefer a lower profit to a higher one, and I cannot believe that this was his intention. If it was, some sort of explanation is clearly required.

6. We shall now restate H.M. without the Marshallian assumptions. That is, we shall explicitly solve for three unknowns: x, X, and scale.

Instead of two cost functions we shall define only one, which we write as

$$K = K(x \text{ or } X, y), \tag{6.1}$$

where y is a variable indicating 'scale'. It is defined in the following way: it measures the output at which, with any given method of production, costs cannot be lowered by substituting one input for another. Thus instead of saying that the entrepreneur chooses to have so and so much equipment, we say what comes to the same thing, that he chooses a (hypothetical) minimum cost output. The greater this hypothetical output (y) the greater is the scale of production. The equation in the partial derivative of K,

$$\frac{\delta K}{\delta y} = 0, \tag{6.2}$$

defines the scale at which any actual given output is produced at lowest cost. At this value of y, actual and hypothetical output coincide.

It may help readers to think of y in the following way. Affix a label (the value of y) to each of the short-run average cost curves of which the long-run average cost curve is an envelope. Let the label given to any short-run cost curve be the output at which the latter is tangential to the long-run cost curve.

Our definitions of g and G now are:

$$g = r(x) - K(x, y), \tag{6.3}$$

$$G = R(x, X) - K(X, y). \tag{6.4}$$

Proceeding as before, but remembering that we have three unknowns, x, X, and y, we obtain the equilibrium equations:

$$U_g(r_x - K_x) + U_G R_x = 0, \tag{6.5}$$

$$U_G(R_X - K_X) = 0, \tag{6.6}$$

$$\left.\begin{aligned} U_g{}_x K_y + U_G{}_X K_y &= 0 \\ \frac{U_g}{U_G} &= -\frac{{}_X K_y}{{}_x K_y} \end{aligned}\right\}, \tag{6.7}$$

or

where ${}_xK_y$ and ${}_XK_y$ are the partial derivatives of K with respect to y, when x and X are produced respectively.

Equation 6.5 is in all respects similar to 3.8 and requires no comment. 6.6 tells us that ($U_G > 0$) marginal revenue will equal marginal cost in the open period. The question is, should K_X be interpreted as long-run or short-run marginal cost? The answer to this is provided by 6.7. As long as $U_g > 0$, $U_G > 0$, $x > X$, it follows from 6.7 that (*a*) ${}_xK_y$ and ${}_XK_y$ must be of opposite sign, and this implies that y lies between x and X and hence (*b*) that ${}_XK_y > 0$ and ${}_xK_y < 0$. But ${}_XK_y > 0$ means that a reduction in scale would lower open period costs. Hence K_X must be interpreted as short-period marginal cost and open-period output will be produced with transitional excess capacity. There is no information in the model to tell us whether there will also be orthodox excess capacity.

By similar reasoning it becomes clear that the perfect sticker ($U_g = 0$) will produce X at 'optimum' scale (${}_XK_y = 0$), while the perfect snatcher ($U_G = 0$) will produce x at 'optimum' scale (${}_xK_y = 0$). In all other cases there will be transitional excess capacity.

The intuitive reason for this result is fairly clear. Anyone who is not a perfect sticker (derives some pleasure or displeasure from $g \gtrless 0$) will take account of the fact that if $x > X$, he can increase g at the expense of G by producing at a slightly larger scale, as long as x is not produced at lowest cost. Hence the marginal rate of substitution between g and G (in the utility sense) must equal the marginal rate of transformation between g and G due to changes in scale.

7. It is thus seen that the problem remains perfectly tractable, besides giving us further insights, if we do not utilise the 'Marshallian assumption'. But, while the H.M. tells us something about the process of competition, it is not adequate for an analysis of final equilibrium and thus orthodox excess capacity. It also ignores uncertainty and the Harrodian ritual.

Before, however, going any further there is another point in H.M. to which I wish to draw attention.

I find it difficult to understand why open period revenue should depend on closed period output. This is not the traditional interpretation of the interdependence of revenue functions, and is plainly contradictory to Mr. Harrod's hypothesis. Surely it is more natural (and traditional) to regard the appearance of competitors in oligopolistic situations as due to the excess profits earned by existing producers, rather than to their output.

Let us then assume that 'normal' profit however defined is included in K. We now rewrite 3.3 as

$$R' = R'(g, X). \tag{7.1}$$

We are only interested in situations for which $\dfrac{\delta R'}{\delta g} = R'_g < 0$. 6.5 and 6.7

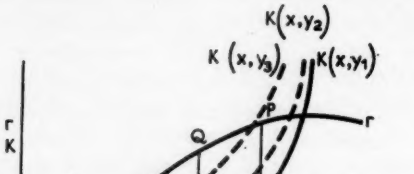
now become

$$(U_g + U_G R'_g)(r_x - K_x) = 0, \tag{7.2}$$

$$(U_g + U_G R'_g)(-{}_xK_y) + U_G(-{}_XK_y) = 0. \tag{7.3}$$

From 7.2 we obtain the startling result that except in the case where the expression in the first bracket is zero, $r_x = K_x$ (marginal revenue equal to marginal cost in the closed period). Before explaining this, note that if the expression in the first bracket is zero, then 7.3, ${}_XK_y = 0$, i.e. X is produced at optimum scale and there is no transitional excess capacity.

We now come to the explanation. Consider the following diagram:



Or is the total closed-period revenue function and $K(x, y_1)$ is the closed period cost function when 'scale' $= y_1$. Suppose now that X is not planned to be produced at optimum scale, i.e. ${}_XK_y > 0$. PR measures closed period profit. Suppose that the slope of $K(\ )$ at $R >$ slope of r at P ($r_x < K_x$). Then if our producer reduced the scale of his operation he could certainly increase open-period profit (${}_XK_y > 0$). There must exist a closed-period output OM, at which $QS = PR$.[1] Thus as long as (*a*) $r_x < K_x$ and (*b*) ${}_XK_y > 0$, our producer can always arrange matters such that he keeps closed-period profit the same and thus does not affect R, while increasing his open-period profit.

Thus $U_G > 0$ (the entrepreneur is not a perfect snatcher) is not a necessary or sufficient condition for the non-maximization of closed period profit. Oligopolistic expectations certainly lead to closed period profits being lower than they would have been in the absence of such expectations. But that

[1] The definition of g is $$g = r(x) - K(x, y) \tag{1}$$

and thus $$dg = r_x dx - K_x dx - {}_xK_y dy. \tag{2}$$

As long as $r_x < K_x$, since ${}_xK_y < 0$, there must exist some value of $dx < 0$ and $dy < 0$ for which $dg = 0$.

may only mean that closed period output will be produced on a scale less appropriate to it (smaller) than would otherwise have been the case.

On the other hand, the expression in the first bracket of 7.2 will be equal to zero, and closed period profits need not be maximized on one of two assumptions: (*a*) if $U_g = 0$ (perfect sticker), then it is easily seen that $R'_g = 0$, and thus in this case, Professor Hicks's conclusions apply as before. (*b*) If the utility and open period revenue functions are such that closed-period output is determined entirely by reference to the effect of closed-period profit on open-period revenue. This is likely to be the case where potential closed period profits are rather large relatively to 'normal' profit. For it is mainly a question of which of two functions, the utility function or the closed-period profit function, attains its maximum first, as closed-period profits are increased either by changes in x or in y. These results are, however, of limited interest only, since as we shall show (in 10 below), H.M. is not suitable to a discussion of oligopolistic behaviour.

8. We are now ready to turn to the Harrodian proposition (H.P.), defined in (1). Mr. Harrod's point, if I understand it correctly, can be summarized as follows. The orthodox conclusion that a downward sloping demand curve will lead to orthodox excess capacity is based on two basic assumptions: (*a*) there is free entry in the sense that close substitutes can be and are easily produced in response to abnormal profits in the industry and (*b*) producers at all times maximize their profits. But assumption (*b*) ignores the known preoccupation of many business men with the long run, their difficulties of estimating short-run marginal quantities, their uncertainty with regard to the future, and the ritualistic way in which business men are forced to deal with a hazy reality. This ritual is twofold: on the one hand producers will choose a price such that on the average, normal profits are earned. On the other hand they will stick to that price even though actual demand may fluctuate about its mean level, as long as these fluctuations are not large or systematic. Since such a price is chosen, there are no abnormal profits (on the average) and hence new competitors will not appear. Thus whether orthodox excess capacity appears or not is simply a matter of whether the mean demand curve intersects the long-run average cost curve including normal profits on its downward sloping part or not.

9. Professor Hicks, in discussing H.P., has concentrated on the ritualistic behaviour described by Mr. Harrod. He very properly concludes that the Harrodian entrepreneur is a 'perfect sticker', although he also seems to imply that Mr. Harrod assumes oligopolistic expectations, which is not the case. But when Professor Hicks comes to examine the consequences of his model to the excess capacity hypothesis, it is difficult to see whether he has in mind orthodox or transitional excess capacity, nor is it easy to verify his

conclusions at all rigorously. This of course does not mean that we do not gain some valuable insights from H.M. For instance, the analysis of the role of snatchers in H.M. is most illuminating.

That Professor Hicks's analysis, however, is inadequate from Mr. Harrod's point of view can be seen as follows. Suppose all entrepreneurs to be perfect stickers. Then as long as the long-run demand curve is not tangent to the long-run average cost curve, there will be abnormal profits leading to entry. This will be true if expectations are oligopolistic. For oligopolistic expectations do not affect the maximization of profit in the open period. This suggests that Professor Hicks's period dichotomy is unsatisfactory. For if I have succeeded in keeping out competitors in one period, I cannot then be assumed to be indifferent to the possibility of attracting competitors in another. Indeed, in so far as one succeeds in keeping out competitors, the lapse of time simply brings one into another closed period.

Thus the only way to interpret H.M. is as follows. The length of the open period is such that abnormal profits during that period attract no competitors in that period. The entrepreneur's horizon is equal to the time span made up of the closed and open period. If that is true then whether the entrepreneur is a perfect sticker with oligopolistic expectations or not, orthodox excess capacity must eventually arise. But, from the remarks about the durability of equipment, made by Professor Hicks, we conclude that this is not the interpretation he wishes to put on the periods, and hence that H.M. needs further modification.

10. The modification is fairly obvious and also gives some insight into the plausibility of Mr. Harrod's assumption. That assumption may be restated as follows: entrepreneurs act in such a manner as to ensure constant average profits through time given that the demand conditions remain the same. This is the only way I can interpret the ritual.

The appropriate utility function could now be written as

$$U = U(g_1, g_2, \ldots g_n, G) \tag{10.1}$$

where $g_1 \ldots g_n$ are profits earned in each of a number of n periods, the length of each period being such that during it the number of competitors may be taken as given. G is the expected price at which the business could be sold at the end of the nth period. The economic horizon is n periods. It is assumed, without further analysis, that the perfect sticker keeps his capital intact if it is of the appropriate size. The symbols $x_1 \ldots x_n$ stand for the outputs planned for each period.

Maximizing as before, we obtain a series of n equations in the partial derivatives of the x_j:

$$U_{g_j}(r_x - k_{x_j}) + \sum_{i=j+1}^{n} U_{g_i}\frac{\delta g_i}{\delta x_j} + U_G\frac{\delta G}{\delta x_j} = 0 \quad (j = 1 \ldots n). \tag{10.2}$$

The perfect sticker is now the entrepreneur for whom $U_{g_1} = U_{g_2} = \ldots U_{g_n} = 0$. That is he is the entrepreneur whose utility depends only on the expected capital value of his business at the end of the economic horizon. Since $\frac{\delta g_k}{\delta x_j} \gtrless 0$ implies $\frac{\delta G}{\delta x_j} \gtrless 0$,[1] it follows from 10.2 that for this entrepreneur

$$\frac{\delta G}{\delta x_1} = \frac{\delta G}{\delta x_2} = \ldots = \frac{\delta G}{\delta x_n} = \frac{\delta g_2}{\delta x_1} = \frac{\delta g_n}{\delta x_1} = \frac{\delta g_3}{\delta x_2} = \frac{\delta g_n}{\delta x_2} \text{ \&c.} = 0. \quad (10.3)$$

This is only another way of stating the common-sense conclusion that the capital value of the business at the end of n periods will be maximized if the entrepreneur succeeds in keeping all competitors out in the intervening stages.[2]

The startling result of section 7 has now disappeared. Profits will in general not be maximized in any period. The even more startling result obtained by Professor Hicks also disappears. For in H.M., $U_g = 0$ (perfect sticker) implied $R_x = 0$. From this Professor Hicks concluded that since R and r were now the same, and since in the open period marginal cost equals marginal revenue, and since open and closed period output were the same, marginal cost would also equal marginal revenue in the closed period. So the oligopolist wasn't an oligopolist after all! 10.2 rids us of this rather odd result. It should, however, be noted that even in the context of section 7 Professor Hicks's results do not follow. For $R'_g = 0$, and $R'_X = K_X$, do not imply $x = X$.

This, rather than H.M., seems to me the proper rationalization of the behaviour of the Harrodian entrepreneur with oligopolistic expectations.

[1] For if $\frac{\delta g_k}{\delta x_j} < 0$ then that implies new entrants and the demand curve is permanently shifted to the left, and the reverse for $\frac{\delta g_k}{\delta x_j} > 0$. Of course this is an assumption.

[2] To determine the 'scale' of production we partially differentiate 10.1 with respect to y and set equal to zero. Remembering that $U_{g_i} = 0$ $(i = 1 \ldots n)$, we have

$$U_G \frac{\delta G}{\delta y} = 0 \quad (U_G > 0). \quad (1)$$

Now from 10.2 and our assumptions we have

$$\frac{\delta g_k}{\delta x_j} = \frac{\delta g_k}{\delta g_j} \frac{\delta g_j}{\delta x_j} = 0 \quad (2)$$

and thus unless in the special case of $\frac{\delta g_j}{\delta x_j} = 0$,

$$\frac{\delta g_k}{\delta g_j} = 0. \quad (3)$$

But on the assumption that capital is kept intact, $\frac{dg_k}{dy} \gtrless 0$ implies $\frac{\delta G}{\delta y} \gtrless 0$. Thus

$$\frac{dg_k}{dy} = \frac{\delta g_k}{\delta g_j} \frac{\delta g_j}{\delta y} + \frac{\delta g_k}{\delta y} = 0 \quad (4)$$

and hence by (3),

$$\frac{dg_k}{dy} = -x_k K_y = 0. \quad (5)$$

Since $x_1 = x_2 = \ldots = x_n$ it follows that the scale will be such as to minimize the cost of producing the steady output. This also is Mr. Harrod's contention.

Whether this sort of behaviour, and these sort of assumptions, are justified by the empirical evidence I cannot say. The behaviour of the Harrodian entrepreneur with polypolistic expectations cannot be rationalized by any maximization procedure, and must be interpreted as a behaviouristic principle. The best way of doing this is to say that the entrepreneur acts *as if* he were an oligopolistic sticker.[1]

11. We can now at last turn to what I regard as the major difficulty of Mr. Harrod's analysis, assuming throughout that entrepreneurial behaviour is adequately described by the postulates of 10. Mr. Harrod defines normal profit as 'the rate of profit which the entrepreneur would himself deem just sufficient in considering whether or not to undertake an extension of his plant'. This is the rate of profit which will be employed at arriving at the 'full-cost' price, which Mr. Harrod assumes will be charged. We are not now concerned with the rationalization of this procedure, but accept it as a correct description of the real world of which Mr. Harrod has evidence.

Now suppose that the existing entrepreneurs have found their equilibrium price and output and that this position can be described by the intersection of the long-run demand curve with the long-run average cost curve including normal profit. If we now say that at this price no new entrants will appear we are in some difficulty in explaining why anyone should ever enter an industry. For by assumption every potential entrant, when making his calculations, assumes that he will only earn normal profit, but normal profit does not attract him into the industry! The full-cost principle coupled with the assumption that only abnormal profits induce entrants, leaves us with the problem of why anyone is producing what he is producing at all. Not only has Mr. Harrod abolished price competition (because of the double ritual), he has also abolished the competition of new-comers. If a potential entrant must charge a price which gives a profit which keeps others out, then by the same argument it should have kept him out.

There are only two ways out of this dilemma. Either we drop the full-cost principle or we drop the assumption that the ability only to charge a full cost price keeps out entrants. My personal predilections are for the former procedure. But this is not the place to launch an attack on this principle. We shall therefore investigate the consequences of the second procedure.

The sensible way out here is to assume that entrants continue to arrive as long as they believe that they can charge a full-cost price. That is as long as it is 'just worth while'. The full cost price can thus be regarded as the supply price of entrants. This then explains why a producer entered an industry fully knowing that he would charge a full-cost price.

[1] Since Mr. Harrod believes that the ritual keeps out competitors, the entrepreneur acts as if he were an oligopolist even if he is not one!

That this assumption leads to the following two conclusions is clear: (*a*) existing producers cannot keep out entrants by charging a full-cost price unless their 'normal profit' is much lower than the average of normal profits, and (*b*) unless (*a*), orthodox excess capacity will again appear.

The proviso in (*b*), 'unless (*a*)', is similar to the proviso of orthodox theory. We thus conclude that if our analysis of entrants is accepted, that a downward sloping demand curve is a sufficient condition for the appearance of excess capacity.

12. I would like to put the conclusions of 11 into the language of the modified H.M. of 10, since that may clarify the position. If producers are very much alike (i.e. have similar utility functions), then the requirements for an oligopolistic sticker are that all the 'cross terms' such as $\frac{\delta g_i}{\delta x_j}, \frac{\delta G}{\delta x_j}$, &c. be zero, and that in turn must mean that at the values of $g_1 \ldots g_n$ and G thus defined, the utility of all competitors when contemplating these values must be zero. But this on the assumption of similarity of utility functions, means that the utility of our producer of this profit stream is also zero! This, to repeat our earlier statement, means that to keep others out, you must keep yourself out! This suggests that perfect stickers must be very rare indeed!

It may now be argued that potential entrants will take account not of the actual profits of existing producers but of the profits they themselves could earn if they entered. If that is so the oligopolistic behaviour will not find expression in the profits charged but in the ability to engage in price wars, &c. This seems in fact to be the case.

13. We may now sum up the conclusions reached in the paper:

(*a*) The expectation that long-run demand is less than short-run demand, the long-run demand schedule is to the left of the short-run demand curve, will lead to production with transitional excess capacity in the long run, unless no importance is attached to short-run profit at all.

(*b*) If we follow Professor Hicks and assume an oligopolistic entrepreneur to be only concerned with keeping out entrants in the closed period, being indifferent as to whether they enter as a result of his action in the open period, and if we make the reasonable hypothesis that open period revenue is a function of closed period profit (rather than output), then the producer may maximize short-run profit even if he is not a 'perfect snatcher'.

(*c*) The proper rationalization of the Harrodian entrepreneur's behaviour seems to be the following. The entrepreneur acts *as if* he were maximizing the capital value of his enterprise at the end of the economic horizon and on the assumption that he is in an oligopolistic situation. Profits in any period are then maximized only in exceptional circumstances.

(*d*) As far as the emergence of orthodox excess capacity is concerned (under assumption (*c*)), the real question turns on whether the Harrodian ritual keeps out entrants. If as in orthodox theory we assume the entrepreneurs similar, then an entrepreneur entering an industry can stop others from following him by a number of devices. He cannot, however, do so by manipulating his own profit margin without making it not worthwhile for himself to enter the industry.

(*e*) In a world where business men act as high priests of the full-cost principle, it is necessary to assume that they will enter every industry as long as they are able to perform their ritual there, i.e. cover full costs. Hence charging full cost will not prevent the emergence of orthodox excess capacity.

(*f*) Lastly we may draw a general conclusion. There can be few economists who would regard a downward sloping demand curve as sufficient for the emergence of excess capacity when there is free entry. The possible lumpiness of investment (to which Mr. Kaldor drew attention), the wide disparity in the abilities of potential entrants, the diversity of their utility functions (aversion to risk, trade of a particular kind, &c.) and the variations of the availability of finance must all operate to modify the orthodox proposition. In any case 'free entry' is difficult to define in a non-circular fashion.

The full cost principle, however, as such does not modify the orthodox conclusion. This seems to me to lend weight to the belief that the full-cost principle describes the actions of people who are members of an industry which has already reached equilibrium. As a tool of analysis of how this equilibrium is established it seems of doubtful use and validity.

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IMPORT PRICES AND INFLATION: THE EXPERIENCE OF THE UNITED KINGDOM 1950–2

By G. W. MAYNARD

In the last 7 or 8 years retail prices in the United Kingdom have risen by about 40 per cent. When contrasted with the experience of many other countries over the same period this long price inflation has not been extreme; nevertheless it has given rise to many social problems and has led to much disquiet.

Prices have risen continuously but not always at the same rate. It is evident from Chart I, which shows the course of retail, import, and export prices over the post-war years, that periods of comparative stability have alternated with others of rapidly rising prices; and of the latter the period following the outbreak of the Korean War was by far the most serious. The reasons for the tremendous boom in commodity prices between June 1950 and March 1951 are now well known, and its outcome was a steep rise in United Kingdom import prices which caused both a serious balance of payments crisis and an internal inflation of costs, prices, and incomes, which exceeded that of any previous year. Peculiarly enough, however, in this period of severe price and income inflation, the United Kingdom experienced its first serious check to the upward rise in production and employment. In the last quarter of 1951 and the first half of 1952 output declined in some industries and unemployment rose to its highest post-war level.[1] The size of this recession must not be magnified. Even at its worst point total unemployment did not exceed half a million, barely 2½ per cent. of the occupied population, and not all industries were affected. Being concentrated in one or two industries, mainly consumer goods, the recession was conspicuous but localized in its effects. Textile and clothing industries were affected most; unemployment began to rise in the last quarter of 1951 from a low of 13,000 in August of that year, to more than 150,000 in May of 1952, and at the lowest point of the recession production had declined by 30 per cent. Other durable consumer goods industries were affected to a lesser extent, as were some heavy industries, although the primary cause here was probably import cuts imposed abroad in the second quarter of 1952. Total output was affected significantly enough to show in the index of industrial production, which in the last quarter of 1951 indicated a levelling off in the rate of increase of the early part of the year, and a fall of 3½ per cent. by the second quarter of 1952.

It does not appear that this minor recession was due to a shortage of raw materials or other production difficulties; rather it seems to have been due

[1] Except for the sharp rise in 1947 caused by the fuel crisis.

to a deficiency of demand. The coexistence of open inflation and falling employment and production arising from deficiency of demand is sufficiently interesting to warrant some investigation; and it is the thesis of this paper that these apparently contradictory developments were not independent of each other. In Section I the nature and characteristics of an inflation induced by rising import prices are analysed, and it is shown that under certain conditions an inflation of this type may well be characterized by falling production and employment in some sectors of the economy. This analysis is then used in Section II to give a possible interpretation of economic developments in the United Kingdom in the two years following the outbreak of the Korean War; and Section III comments on certain aspects of policy.[1]

Section I

In order that the analysis in this section shall be helpful in interpreting the experience of the United Kingdom it will apply to an industrial country which relies upon imports for the bulk of its raw materials and food. It will be assumed that resources are fully employed, and that any increase in national income is the consequence of price rather than output change. Further, it will be assumed that owing to a world-wide increase in demand for primary products import prices rise significantly. How will internal inflation develop and what will be its characteristics?

First we must define what we mean by inflation. In recent literature, definitions have stressed cause rather than effect. For example: 'inflation is a situation where "extensive" excess demand exists in the markets for the many individual goods'[2] or 'excess spending is merely another name for inflation'.[3] The definition used here, however, will turn on effect: inflation is a situation in which money incomes are rising at a much faster rate than real incomes.[4] The implication is that, unless rigidly suppressed, prices are also rising, so that an inflationary situation is characterized by both rising money incomes and prices. Thus analysis of inflation must do three things: it must indicate the primary cause of inflation; it must explain the way in which the primary cause produces a cumulative rise in prices, money incomes and secondary spending; and finally it must indicate the way in which the process comes to an end. In the analysis

[1] Since preparing the first draft of this paper I have had the advantage of reading Mr. Parkinson's article (*Oxford Economic Papers*, June 1955, p. 177), and in my revision I have taken the opportunity to comment in footnotes on various parts of his analysis. What I have considered most surprising in Mr. Parkinson's analysis is the complete neglect of the recession referred to in the text. This seems to me to provide a possible explanation of the discrepancy between the actual price movements in the period and the price movements as predicted by his model.

[2] B. Hansen, *A Study in the Theory of Inflation*, p. 3.

[3] R. G. Hawtrey, *Towards the Rescue of Sterling*, p. 122.

[4] See F. Paish, 'Open and repressed inflation', *E.J.*, Sept. 1953.

which follows it will be assumed that, in general, prices are based on costs plus a percentage profit margin, although it will be an explicit argument of this paper that monetary demand provides a limiting factor. This assumption, as well as probably being realistic for a predominantly industrial economy, is convenient for tracing out in a fairly precise fashion the quantitative effects of changes in costs on end-product prices. Money incomes will depend principally upon the outcome of the struggle of labour to maintain real wages in the face of rising prices; and changes in aggregate money spending will be related to changes in money incomes and to certain assumptions regarding investment and government expenditure and to changes in the balance of trade. Although for convenience of exposition the analysis will proceed by considering the factors tending to cause costs, and therefore prices, to rise, separately from those affecting aggregate money spending, it is obvious that the two groups of factors are not independent. A rise in costs cannot be translated simply into a rise in prices unless money expenditure increases commensurately; otherwise the short-run effect is likely to be a squeezing of profit margins, unintended stock accumulation, and, in extreme circumstances, a decline in output in some sectors of the economy.[1] Rises in costs and spending sometimes stem from the same cause (for example, an increase in wage rates with productivity unchanged) thus supporting each other's effect on the general price level. A rise in import prices, however, although affecting costs of production, has no *direct* effect on internal money incomes; and the expansion of money spending which follows is, in the main, the consequence of the wage-price spiral.

We can begin the analysis by listing briefly the factors tending to 'push up' prices from the supply side. These are: (i) the initial rise in the price level of imported components of end-products; (ii) a rise in wage rates, induced by the rise in end-product prices, but not offset by a comparable increase in productivity; (iii) the maintenance of accustomed percentage gross profit margins; (iv) the maintenance of given *ad valorem* rates of indirect taxation where applicable. The larger the import content and the closer the adjustment of wages to prices, the more will costs tend to rise; but maintenance of accustomed percentage profit margins on an unchanged volume of output requires an expansion of aggregate money expenditure to absorb fully the rise in end-product prices. It is conceivable that money expenditure will rise by more than this, i.e. in greater proportion than the rise in costs, so that excess monetary demand becomes the primary and continuing cause of the inflation: alternatively money

[1] Although Mr. Parkinson provides a detailed analysis of the effect of rising costs on the general price level, he does not consider the demand side of the price equation; it follows that his analysis of the inflation is incomplete. Thus it is not possible to agree with his statement 'if the course of import prices could have been predicted, so could the course of final output prices' (op. cit. 2).

expenditure may be the factor limiting the adjustment of prices to costs, thereby bringing the inflation to an early end. It follows that the development and extent of inflation depend upon the way in which the main components of aggregate effective demand react to a rise in import prices.

Of primary importance are short-run changes in the balance of trade, for if monetary demand shifts away from imported to home-produced products, and if the demand for exports increases, the more easily can higher costs be passed on. Consider first the effect of higher prices on the demand for imports. We have taken the predominant imports of an industrial country to he food and raw materials, and to a lesser extent, semi-finished and finisbed manufactured products; and in varying degrees these imports figure as components of end-products whose final buyers are persons, business firms (for purposes of capital formation), the government, and foreigners. The possibilities of import substitution are, first, the *direct* substitution within the productive process of home-produced raw materials and semi-manufactured components, or of labour and capital; and second, as a consequence of the rise of end-product prices, the *indirect* substitution, by final buyers, of products with smaller import content for those with larger. Direct substitution of raw materials is clearly limited both because of technological factors which determine a stable relationship between raw material input and product output, and because of the zero or negligible supply of home-produced raw materials. There may be more scope for the replacement of semi-manufactures, but even here the more specialized the imported component (which is very likely) the less the probability of substitution. Of more importance is indirect substitution. End-product prices tend to rise the more the larger the import component; and the greater the consequential decline in demand for the end-product, the greater is the decline in the demand for imports. But a high elasticity of demand for the end-product does not necessarily imply a high elasticity of demand for the import content; given the elasticity of demand for the end product, the elasticity of demand for the import content will be the smaller the lower the ratio of import content to value of product.[1]

[1] Strictly speaking the elasticity of demand for the import content also depends upon the percentage gross profit margin, but this would have to be unrealistically large to affect the conclusion given above. Let M = quantity of imports in Q units of product; L = quantity of labour in Q units of product; p = unit value of product; w = unit value of labour; m = unit value of imports; g = percentage gross profit margin; η_p = elasticity of demand for product; η_m = elasticity of demand for import content. Then, if $Q = 1$,

$$p = (Mm + Lw)(1+g).$$

Suppose price of imports rises by δm, and price of product by $M\,\delta m(1+g)$. Then

$$\frac{\delta Q}{Q} = \eta_p \frac{M\,\delta m(1+g)}{p}.$$

If M/Q is a technological constant, $\delta Q/Q = \delta M/M$. But $\delta M/M = \eta_m\,\delta m/m$. Therefore

$$\eta_m = \frac{Mm(1+g)}{p}\eta_p.$$

It follows that if both import content and short-run elasticity of demand at the end-product stage are low, conditions which probably apply in respect of 'investment' and 'government' goods, demand for imports is but little affected by a rise in price. The import content of consumer goods is usually more significant, owing to the importance of food, clothing, and textiles in consumer's expenditure; but even here, in the case of food, which may have a very high import content, consumers' elasticity of demand is low. General considerations would suggest therefore that if an industrial country's imports are primarily raw materials and food the elasticity of demand for them will be low and almost certainly less than unity. It may be expected then that a rise in import prices brings about an increase in import value which, of course, means a greater leakage of spending power from the domestic economy.[1]

An increase in spending on imports, other things being equal, clearly has deflationary implications; and in order to indicate the latter more exactly it will be provisionally assumed that aggregate monetary domestic expenditure remains unchanged. In forcing up end-product prices, rising import prices reduce the real purchasing power of money demand, i.e. a given level of spending purchases a smaller volume of goods and services. Because of relative price changes, however, the restrictive effect does not apply uniformly. Money expenditure tends to shift towards goods for which demand is inelastic and away from others whose costs may be rising at the same time and for the same reason; and in consequence producers may find it difficult both to pass on increases in costs in respect of the latter, without adversely affecting output or stock-holding, and to maintain sales of goods whose costs may be unaffected by rising import prices. Thus the deflationary impact[2] may be concentrated in one or two sectors of the economy with correspondingly greater severity. We should look for these pockets of relative depression in the field of consumption good production rather than elsewhere, for, relaxing the assumption of constant aggregate monetary outlay, it seems probable in the short run at least that investment and government demands will be maintained in real terms;[3] and the industries most likely to be affected are those producing durable consumer goods from which demand tends to shift, given a rise in prices of food and other immediate necessities.

[1] It is obvious that higher import prices will take some time to work their way through the system. Thus the immediate effect on import volume will depend upon producers' anticipations as to how final buyers will react to future higher prices of end-products. If producers do not reduce their demand for imports, and they are wrong in their forecasts of consumers' behaviour, they will find they are accumulating stocks of materials and of finished and unfinished goods, and in consequence they may be unable to pass on fully the rise in their costs.

[2] i.e. 'Output' deflationary.

[3] If non-consumption demands are not maintained in real terms there will be a downward multiplier effect and consumption demand will be further affected.

However, it is clearly not justifiable to continue this discussion on the assumption that consumers' monetary outlay remains constant. Even if we still assume for a moment that wages are unaffected by rising prices, we have to take into account the possibility of a rise in the propensity to consume. If consumers expect the rise in prices to continue into the future there may be a temporal shift in expenditure; or more important, if consumers are determined to maintain an accustomed standard of living, they may be willing to reduce permanently their margin of saving. Clearly, however, the magnitude of the resulting increase in money expenditure depends upon the size of the personal saving margin; if this is small the consumption function effect will be small also. Wage rates are unlikely to remain constant, for in a state of full employment it is unreasonable to assume that labour will accept easily a decline in real wages. But although as a consequence money expenditure on consumers goods increases also, there is a further increase in costs of production, unless offset by an increase in labour productivity; and it does not necessarily follow that the increase in money expenditure will be sufficient to absorb the total rise in costs brought about by rising import prices and wage rates. Obviously there must be some necessary relationship between the rise in import prices and wage rates and changes in productivity to satisfy this condition. Further, the relationship must take into account two other factors tending to limit the increase in expenditure for any given rise in wage and other incomes: first, with a progressive taxation system disposable money income rises in less proportion than earned incomes,[1] and second, the marginal propensity to consume may be a diminishing function of disposable money income.[2]

In the simplest case where (i) investment and government demand in real terms, (ii) import and export volumes, (iii) labour productivity, (iv) the average rate of tax on income, (v) the average propensity to consume,[3] all remain constant, it can be shown that wage rates must rise in the same proportion as import prices to leave real consumption demand unaffected.[4]

[1] It will be recognized that on the one hand indirect taxation increases the tendency for prices to rise, given an initial rise in costs, and on the other hand, direct taxation restrains the increase in consumption expenditure given a rise in incomes. The joint effect of government taxation is therefore 'price inflationary' and 'output deflationary'.

[2] This statement does not contradict that made earlier in the paragraph. Given rising prices but constant money income it is clear that the propensity to consume with respect to the latter may rise. If money incomes rise in sympathy with prices, however, there may be an element of money illusion, i.e. the slope of the function may be more important than a shift in its position.

[3] With respect to disposable *money* income.

[4] Let the value of consumption goods $(V_c) = (m_c+l_c+g_c)(1+x)$,
" " investment plus government goods $(V_i) = (m_i+l_i+g_i)$,
" " export goods $(V_e) = (m_e+l_e+g_e)$,
where m, l, and g are the values of import, labour, and gross profit content respectively, and subscripts c, i, and e denote categories of goods to which they belong; and x is the

Costs of production, disposable money income, and consumers' money expenditure would then rise in similar proportion, and the economy would arrive at a new full employment equilibrium at a higher level of money incomes and prices. Of course, the conditions which define this case are not likely to obtain; nevertheless, reference to them enables some useful conclusions to be drawn. Thus, for example, if the average rate of tax on income were to rise, or the propensity to consume to fall, wage rates would have to rise in greater proportion than import prices to offset the deflationary impact of the latter; or if non-consumption items of expenditure (in aggregate) were not maintained in real terms a downward multiplier process would tend either to offset the purchasing power effect of higher wage rates, or more probably, to limit the extent to which higher wage rates are achieved. These conclusions may be expressed in a way that will be of use in the empirical analysis of Section II: a rise in import prices will tend to produce a fall in sales of consumer goods (and possibly a decline in output) if any, or any combination of, the following factors operate: (i) a fall in the aggregate level of real investment, government and export demand; (ii) a rise in the ratio of direct taxes to income; (iii) a fall in the

percentage rate of indirect taxation on consumption goods: and let Y_D = disposable money income; h = average propensity to consume with respect to Y_D; t, t' = average rate of direct tax on personal incomes before and after change in income; $L = l_c+l_i+l_e$ = total labour income; $G = g_c+g_i+g_e$ = total profit income (all distributed). Then

$$Y_D = (L+G)(1-t)$$

and

$$h = \frac{V_c}{(L+G)(1-t)}.$$

Suppose import prices rise by z per cent. and, in consequence, wage and profit incomes by r per cent. If higher costs are passed on:

$$\begin{aligned}\Delta V_c &= (\Delta m_c+\Delta l_c+\Delta g_c)(1+x)\\ &= (m_c z+l_c r+g_c r)(1+x)\end{aligned}$$

and after the change in wage and profit incomes

$$Y_D = (L+G)(1+r)(1-t').$$

It follows that if the (*ex post*) average propensity to consume is to be the same before and after the change in income, then

$$\frac{V_c}{(L+G)(1-t)} = \frac{V_c+\Delta V_c}{(L+G)(1+r)(1-t')}.$$

Solving for r we have

$$r = \frac{z(1-t)+\left(1+\dfrac{l_c+g_c}{m_c}\right)(t'-t)}{(1-t')-\dfrac{l_c+g_c}{m_c}(t'-t)}.$$

Thus, if (*a*) $t = t'$ then $r = z$,

(*b*) $t' > t$ then $r > z$, and the more so the smaller the import content of consumer goods.

Clearly, if r is smaller than z or not sufficiently greater (when $t' > t$) and/or if non-consumption expenditure is not maintained in real terms, and/or if there is a decline in the propensity to consume, money expenditure on consumer goods does not increase in the same proportion as do the costs of producing them.

propensity to consume; (iv) a failure of wage rates to rise in the same proportion as import prices.[1]

The factors listed in the previous paragraph may work in the reverse direction: an increase in non-consumption items of expenditure in real terms, a fall in the tax-income ratio, and/or a rise in the propensity to consume, would all tend to offset the danger of a consumer good industry slump. There seems no *a priori* reason for expecting a rise in import prices to bring about an increase in real investment or government expenditure although it is plausible to assume that in the short run neither of them will fall. On the other hand there seems good reasons for expecting some repercussions on exports. Higher import prices of the home country imply higher money incomes abroad which may lead to an increase in demand for manufactured products, but the extent to which the particular home country shares in this expanded market depends upon a number of factors —competition from abroad, delivery dates, the overall state of the market, and so on. An increase in demand for exports, of course, tends to take up the slack in the economy produced by rising import prices but its influence will not be felt immediately. First there will almost certainly be a time lag between the earning of higher incomes abroad and the resulting increase in demand; and second, unless products, for which home demand may be declining are exportable, there will be the time lag involved in shifting resources. It follows that for a significant period of time at least some consumer good industries may be experiencing slump conditions.[2]

The analysis of this section may therefore be summarized in the following terms. A sharp rise in import prices is likely to induce an internal inflation of costs, prices, and incomes, and in the short run at least, an adverse balance of trade. Whereas, however, in most inflations, these conditions are normally accompanied by obvious signs of demand pressing against supply, for example, shortages of goods, falling stocks, and expanding profit margins, &c., the reverse may be true in this case; output and employment may be falling, stocks of goods accumulating, and profit margins contracting. More shortly, a rise in import prices may be 'price inflationary' but 'output deflationary'. In the next section we shall inquire whether the analysis developed here is applicable to the experience of the United Kingdom in the period following the outbreak of the Korean War.

[1] Provided that each of these factors is not offset by the converse of any other.

[2] A further consequence of export demand lagging behind the rise in import prices is, of course, a severe worsening in the trade balance; and the coincidence of the latter and possibly some unemployment and falling production in particular sectors of the economy involves certain issues of policy. These, however, will be discussed in Section III.

Section II

In the 6 months prior to September 1949 United Kingdom import prices had been falling and the terms of trade had been moving favourably (see Chart I). Devaluation of sterling brought an end to this favourable trend, and in the following 6 months import prices rose by about 20 per cent. The effect of devaluation seemed to be coming to an end by the second quarter of 1950 when the outbreak of the Korean War caused a further commodity price boom, and by the middle of 1951 average import prices had risen by another 40 per cent. Raw material prices reached a peak almost double the December 1949 level, and food and manufactured goods prices went up by 50 per cent., reaching their peak in the second quarter of 1952. These prices were reflected in costs to industry; the Board of Trade price index of basic materials to industry showed a rise of almost 100 per cent. by the beginning of 1951.

Clearly cost increases of such magnitude could not conceivably be offset by increases in labour productivity, nor their effect on end-product prices restrained by price control. Even in the absence of a wage-price spiral the rise in import prices was sufficient to cause the retail price index to rise by 7 or 8 per cent., clothing and household goods prices being particularly vulnerable to higher material costs. Wage rates however began to rise so that prices of goods with negligible import content were affected also (see Chart II); the net result was a 17 or 18 per cent. increase in the cost of living in as many months.[1] Food, clothing, and household goods prices rose by about 22 per cent., and the prices of other goods and services by varying degrees between 16 and 22 per cent. Thereafter, from February/March 1952 onwards, the import price effect seems to have reversed itself, although food and fuel and light prices continued to rise, the former due mainly to reductions in subsidies in the 1952 budget, the latter because of further increases in labour costs. Export and capital goods were also affected by the cost inflation. Chart III shows the price movements of the main export categories, and the influence of import prices is clearly evident in the case of the textile group, whereas metals and engineering product prices reflect the increase in wage costs. The rise in capital goods prices may be taken as reflected by the metals and engineering export graph and was something like 20 per cent. compared with a rise in wage rates of 17 per cent.

Although it is not the purpose of this analysis to deny the severity of the inflation just described, it will be argued here that the 17 or 18 per cent. rise in average retail prices was much less than might have been expected given the underlying factors tending to cause costs to rise. To this end a rough estimate will be made of the effect on consumer goods prices of the rise in import prices and wage rates experienced by the United Kingdom

[1] By January 1952.

in the period in question, on the assumption that all costs are passed on and that percentage gross profit margins are maintained. This estimate may then be compared with the price changes that actually occurred.

TABLE I

Industrial Input-Output

(from Blue Book, 1953: relating to 1950)

% (*Inputs*)	*Agric.*	*Mining Quarrying*	*Metals Eng. Veh.*	*Textiles Leather Clothing*	*Food Drink Tobacco*	*Other manuf.*	*Building contrct*	*Gas Elec. Water*	*Other prod. & trade*	*Other industries*
Direct Imports .	5	2	7	28	15	19	3	..	4	..
Indirect Imports .	5	2	3	2	4	3	3	2	1	..
Total Imports .	10	4	10	30	19	22	6	2	5	..
Intermediate Content, non-import	34	24	27	20	33	26	32	52	13	..
Employees income	25	62	43	29	10	30	50	23	41	80
Gross Profit Income and other	36	9	20	20	11	18	12	19	35	20
Indirect Taxes .	−4	1	..	1	27	4	..	4	5	..
Total Input = (gross output) .	100	100	100	100	100	100	100	100	100	100
Destination of Output:										
Intermediate goods of other industries	55	74	22	13	5	58	19	44	21	..
Persons . .	45	17	9	50	86	14	18	43	57	30
Public Auths. .	..	1	6	1	1	9	12	5	7	70
Fixed Cap. form.	..	1	27	..	..	..	50	7	1	..
Stocks . .	..	−1	..	−1	2	−1	..	..	..	..
Exports . .	..	8	36	36	5	16	..	..	11	..

Table I is a modified version of the Industrial Input-Output table appearing in the 1953 Blue Book 'National Income and Expenditure 1946–52', published by the Central Statistical Office. It shows in a rough fashion the import, other intermediate goods, labour, gross profit and indirect tax content of the gross output of each of the major industrial groups of the United Kingdom; and shows also the destination of output of each of these groups. Thus it is possible to deduce from this table, first, the extent to which different industrial groups are affected by a rise in their import, wage, or other costs; and second, the extent to which different final buyers are affected by any given rise in costs and prices. For example, it is clear that industrial groups which are significant suppliers of goods to persons (textiles, leather, clothing; food, drink, tobacco;[1] other manufacturing) and to foreigners, are also significant users of imported materials; and that industrial groups supplying capital and intermediate goods are relatively small users of imported materials but large users of labour (metals, engineering, vehicles; building, contracting). Table II attempts to show these facts more precisely. Columns 1, 2, and 3 provide

[1] The high import content of the food, drink, tobacco group is obscured by heavy indirect taxes on beer and tobacco.

rough estimates of import and labour content and of gross profit margin added for some major components of final expenditure. These estimates are also obtained by inference from the input-output table of the Blue

TABLE II

	Import content %	*Labour content* %	*Gross profit* margin added* %	*Estimated price increase* %	*Actual price increase % June 1950–Jan. 1952*
All consumer goods . .	15	43	72	22	18
Textile, clothing . .	30	45	33	26	22
Household† . . .	20	50	43	24	22
Capital goods . . .	7	63	43	19	20
All exports . . .	14	52	50	22	25
Manufactures . . .	12	58	43	19	20

* Includes other trading income, rent, and indirect taxes.

† It is assumed here that household goods are supplied by the 'Other manufacturing' group.

Book, and in their compilation the basic assumption is made that for any industrial group, imports and labour are distributed uniformly over all production so that the relationships which they bear to a particular part are the same as they bear to the whole. Further, by means of appropriate weighting, allowance is made for the fact that the major components of expenditure are distributed differently over the industrial groups. Thus, almost 75 per cent. of consumers' expenditure is directed to the final output of three groups—food, drink, and tobacco, other production and trade, textiles, leather, and clothing—plus finished imports: 90 per cent. of fixed capital expenditure is directed to the final output of two groups—metals, engineering, and vehicles, and building and contracting: and 85 per cent. of export expenditure is directed to the final output of four groups—metals, engineering, and vehicles, textiles, &c., other manufacturing, and other production and trade. It will be observed that the term gross profit margin, as used here, is a misnomer for it includes not only all other income but indirect taxes as well; and it is therefore implicitly assumed that all other income bears a stable relationship to total value of output and that indirect taxes are imposed on an *ad valorem* basis.

Suppose that import prices rise by an average of 20 per cent. What would be the effect on retail prices in the absence of wage or other cost changes? Reference to Tables I and II would suggest a 3 per cent. rise in average retail prices, made up of a 6 per cent. increase in food, clothing, and textile, and a 4 per cent. increase in household goods, prices. The import content of other consumer goods is insignificant. It will be recalled

that the September 1949 devaluation brought about an average and uniform rise in import prices of 20 per cent., yet retail prices rose by less than 1 per cent. in the following 12 months. Several offsetting factors contributed to this long and unexpected period of price stability. There is some evidence that price control was used to squeeze distributors' margins, particularly in the field of clothing; and subsidies seem to have been adjusted to minimize and delay the effect on essential foodstuffs. Of greatest importance, however, was a reduction in wage costs which offset the rise in import prices; for whereas industrial production in 1950 was some 7 per cent. higher than in the previous year, numbers employed in industry rose by less than 2 per cent. and wage rates remained almost completely stable.[1]

Wage rates and costs, however, did not remain stable in the period following the outbreak of the Korean War; and our estimate of consequential price changes must take into account a 40 per cent. rise in import prices by the middle, and a 17 per cent. rise in wage rates by the end, of 1951. Column 4 of Table II gives estimated price increases for selected categories of goods, the underlying assumptions being that (1) higher import prices have been fully passed on to the final buyer within 6 months, (2) wage increases have been passed on within one month, (3) there has been no change in labour productivity, and (4) percentage gross profit margins have been maintained. Comparison of column 4 with column 5, which presents the actual change in price from June 1950 to January 1952 for each category of good, suggests immediately the following conclusion: whereas in the case of capital and export goods increased costs were fully passed on, in the case of consumer goods, particularly in respect of textile, clothing and household goods, they were not.[2] Because of the nature of the underlying calculations this conclusion is clearly suspect; nevertheless, if taken at its face value, it would suggest the presence of either a supply factor lessening the increase in costs, or a demand factor limiting the adjustment of prices. The obvious supply factor would be an increase in labour productivity but the available evidence suggests otherwise; output per head in manufacturing industry seems to have fallen from the middle of 1951 on.[3] On the other hand there is independent evidence, in the form

[1] Cf. R. G. Allen, *London and Cambridge Economic Service Bulletin*, Nov. 1950.

[2] The price increase for textile and clothing, and therefore for 'all exports', has probably been underestimated, since the price level of imported materials almost certainly rose by more than 40 per cent.

[3] See *Treasury Bulletin for Industry*, Nov. 1953. Mr. Parkinson's model also predicts for the last few months of 1951 a rise in final output prices somewhat greater than in fact occurred (see Table V, page 187). His reference to an increase in labour productivity is misleading, for although it may be that taking the years as a whole productivity was greater in 1951 than in 1950, it is also true that it began to decline in the last half of 1951. Nor has his reference to profits any more significance since it is the percentage profit margin which is significant, not aggregate profits. However, it is agreed that not too much must be read into these figures.

of the minor recession in consumer good production which has been referred to earlier in this paper, that a demand factor was limiting the adjustment of prices to costs; falling output and narrowing profit margins are likely to go together.

TABLE III

Personal Consumption Expenditure in Current and Constant Prices

i. Current prices (£m.)

	Total	*Food*	*Clothing*	*Household goods*	*Rent Rates Fuel Light*	*Drink Tobacco*	*Other*
1949							
1st half	4,177	1,145	453	274	518	704	1,075
2nd half	4,571	1,272	499	322	511	774	1,194
1950							
1st half	4,396	1,315	455	310	525	726	1,049
2nd half	4,856	1,391	550	372	510	894	1,193
1951							
1st half	4,801	1,392	526	387	564	771	1,161
2nd half	5,134	1,557	520	353	539	851	1,314
1952							
1st half	4,951	1,541	472	344	592	789	1,214
1nd half	5.451	1,695	545	371	579	882	1,379

ii. 1948 prices (£m.)

1949							
1st half	4,082	1,115	431	270	..	694	1,052
2nd half	4,439	1,209	478	317	..	768	1,161
1950							
1st half	4,149	1,170	435	302	508	752	1,001
2nd half	4,562	1,258	510	349	490	831	1,224
1951							
1st half	4,268	1,174	448	331	525	756	1,034
2nd half	4,377	1,238	409	282	493	817	1,138
1952							
1st half	4,078	1,150	380	270	522	783	1,013
2nd half	4,456	1,227	457	305	502	830	1,135

Source: Monthly Digest of Statistics.

The available statistics of personal consumption expenditure throughout this period bear out the argument. It is evident from Table III that in 1951 and 1952 aggregate *money* expenditure on consumer goods and services increased very considerably but in neither year sufficiently to offset the rise in prices; in both years real consumption was lower than in 1950. It is evident, too, that a considerable shift in expenditure took place, from the 'postponable type' of goods (clothing and household goods) to the 'immediate and essential type', food, fuel, and light, &c., the real consumption of which was maintained. Thus the main force of the demand

factor fell upon industries producing the former, and particularly so in the last half of 1951 and the first half of 1952.

This outcome is in line with the theoretical reasoning of Section I where it was argued that money expenditure on consumer goods might fail to increase in the same proportion as costs for any, or any combination of the following reasons: (i) a failure of non-consumption items of aggregate national expenditure to be maintained in real terms, thus producing a

TABLE IV

United Kingdom Non-consumption Expenditure 1950–2

In current and constant prices (£m.)

	1950		*1951*		*1952*	
	Current prices	*1948 prices*	*Current prices*	*1948 prices*	*Current prices*	*1948 prices*
Public Auth. current expenditure	2,067	1,895	2,439	2,047	2,886	2,262
Gross fixed capital formation	1,682	1,571	1,866	1,554	2,066	1,568
Change in value of stocks and work in progress	−216	−186	600	449	50	36
Export of goods and services	2,743	2,521	3,412	2,676	3,522	2,613

Source: Blue Book, 1954.

downward multiplier effect; (ii) a failure of wage rates to rise in the same proportion as import prices, or in some circumstances to rise in greater proportion; (iii) a rise in the ratio of direct taxation to personal income; (iv) a fall in the propensity to consume. This section will be concluded with an attempt to indicate which of these factors were operative in the period in question. Unfortunately, however, the depression overlapped two years, beginning towards the end of 1951 and continuing throughout the greater part of 1952, while the statistical material which is pertinent at this stage of the inquiry relates mainly to calendar years. It sometimes becomes necessary therefore to consider the two years separately.

Consider first non-consumption items of expenditure summarized in Table IV for the years 1950–2. It is evident that no downward multiplier process was caused by changes here. The contrary seems to have been the case, for, excluding investment in stocks, the sum of government, fixed capital, and export expenditure, in real terms, was greater in 1951 than in 1950 by £190 million and greater in 1952 than in 1951 by £166 million.[1]

[1] The export figures in Table I include both visible and invisible items. The quarterly figures of the volume of commodity exports are as follows:

	1950	*1951*	*1952*	
1st quarter	171	173	188	
2nd quarter	167	185	163	
3rd quarter	175	176	151	
4th quarter	191	179	169	(1938 = 100).

It will be realized of course that these figures are *ex post* and therefore have no necessary causal significance, but it is unlikely that the conclusion above is seriously affected. More care must be used in interpreting the figures of stock investment for, clearly, part of the considerable increase in real stock holding in 1951 must have been 'unintended' in view of the decline in consumer good sales towards the end of the year. Probably the greater part of it, however, was the result of a deliberate building up of strategic and reserve stocks by government and private industry, but the internal inflationary potential of this aspect of capital formation was directly offset by a 12 per cent. increase in import volume (£354 million in terms of 1948 prices). The converse is true of 1952: deliberate stock disinvestment amounted to more than £400 million, the disinflationary potential of which was partly offset by a decline in import volume (£330 million in 1948 prices). Despite the danger in interpreting *ex post* figures of investment in stocks, it seems reasonable to conclude that over the course of the depression aggregate non-consumption demand was expansionary, but less so in 1952 than in 1951.

When we come to the relationship between changes in wage rates and changes in import prices it is clearly necessary to distinguish 1951 from 1952. By the middle of 1951 average import prices had risen by 40 per cent., and it may reasonably be assumed that the impact on internal costs had been fully experienced by the end of the year. Wage rates, however, rose by only 17 or 18 per cent. in the period June 1950 to January 1952; and for the reasons discussed in the first section of this paper, money incomes and expenditure would therefore have tended to increase in less proportion than money costs. But throughout 1952 the converse is probably true for import costs were falling and wage rates continued to rise. Taxation changes in the budgets of 1951 and 1952 also tended to produce opposite effects: tax rates were raised in the 1951 budget and lowered in the 1952 budget, so that consumption expenditure was restrained in the former year and encouraged in the latter. Nevertheless, tax concessions would not have become effective until the middle of 1952 so that it may still be argued that restrictive taxation was an important factor underlying the fall in real consumer demand.

A rise in investment expenditure (or its equivalent) and/or in wage rates would tend to increase, and an increase in tax rates tend to decrease, the level of money income available for spending on consumer goods; so that changes in disposable money income would indicate the combined influence of these factors. It can be seen from Table V that in each of the years 1951 and 1952 disposable money income rose by about 9 per cent.; and since for each of these years also the average level of retail prices was about 9 per cent. higher than in the year previous, it appears that in aggregate

at least, consumers were fully compensated for the rise in the cost of living. Roughly the same quantity of goods *could* have been bought in 1951 and 1952 as was bought in 1950: the fact that it was not suggests a decline in the propensity to consume. If the national income figures can be taken at their face value, the ratio of personal saving to personal income did in fact rise somewhat in 1951, and very sharply so in 1952; and it may be tempting to conclude that a spontaneous fall in the propensity to consume was the key factor behind the consumer industry slump, the combined

TABLE V

Personal Incomes, Taxation, and Saving

(£m.)

	1950	*1951*	*1952*
(*a*) Total personal income	10,920	11,937	12,764
(*b*) Provision for taxes incl. Nat. Ins. contr. .	1,537	1,707	1,612
(*c*) Ratio of Tax to income	14·0%	14·3%	12·6%
(*d*) Disposable income	9,383	10,230	11,152
(*e*) Personal saving*	102	237	706
(*f*) Ratio of saving to disposable income .	1·08%	2·3%	6·3%

* Including provisions for depreciation and stock appreciation.

Source: Blue Book, Aug. 1954.

influence of the other factors being negligible. But the *ex post* nature of the statistical material leading up to this conclusion must be borne in mind. The relationship between changes in disposable income and changes in the average level of retail prices from one year to the next is the outcome of a number of economic forces. Suppose, for example, that no change had occurred in the saving-income ratio: output may still have been adversely affected, although prices would have been higher since cost increases could more easily have been passed on. The saving-income ratio itself is an *ex post* magnitude, and a rise in it does not necessarily imply a rise in the psychological function. Money incomes were rising rapidly and there may have been an element of unintended saving in the sense that consumers were misled and did not adjust their expenditure correspondingly. In the event of this being true, of course, the relative increase in personal saving was not independent of the inflation or of the rise in import prices.

It would appear that of the factors under consideration each of the last three played some part in the consumer good recession, whilst the first, i.e. real investment expenditure, tended to offset it. In the initial stages the disproportionate relationship between rising wage incomes and rising costs of production seems to have been the most important factor, whilst in the later stages, when wage incomes were almost certainly increasing relatively to costs of production, a large but unexplained rise in personal

saving restrained consumption expenditure. In addition, throughout the period direct taxation tended to absorb a larger proportion of earned money incomes. It cannot be argued, of course, that these developments were the inevitable or logical consequence of an inflation induced by rising import prices; on the other hand they were clearly not independent of it. To this extent, the theoretical analysis of Section I provides a possible interpretation of inflation and consumer good recession in the 2 years following the outbreak of the Korean War.

It will be noted that reference has been made neither to the quantity of money nor to counter-inflationary policy. In the case of the former, it was assumed in the theoretical analysis, and in practice seems to have been so, that money was a passive factor in the inflation: in the case of the latter, the diverse and somewhat contradictory characteristics of this type of inflation raise certain issues of policy, which however will be considered in the following section.

Section III

Although the central point of interest of this paper has been the linking together of the minor recession in consumer goods production with rising import prices and consequential inflation, it cannot be denied that of more concern to the economy is the deterioration of the balance of payments. The coexistence of depressed trading conditions and a balance of payments crisis, both the product of the same cause, raises certain issues of policy which can be only touched upon here.

The usual connexion between inflation and a balance of payments crisis is the existence of excess demand, and policy measures are directed towards its removal. Where rising import prices have provided the basis of both these conditions, the question immediately arises: in what sense is there excess demand? The fact that imports exceed exports is in itself an indication that the economy is demanding more than it is supplying; but a further short-run accompaniment of rising import prices may well be a deficiency of demand in the consumption good sector. Hence the situation may be more one of maldistribution of resources. Nevertheless, it could still be argued that policy measures should not be aimed at reducing the depression but rather of maintaining or even supporting it in order that resources shall shift towards the export sector. The obvious way of achieving the latter is to prevent money incomes from rising in sympathy with prices; but given a strong trade union movement and an initial situation of full employment, this may not be easy. At the worst it might imply the bringing about of considerable unemployment and depression to reduce the bargaining power of labour. Much, of course, depends upon the mobility of resources and the speed with which export demand responds

to higher money incomes abroad. The force of this argument, however, depends upon the assumption that adverse terms of trade have come to stay, a situation to which the economy has to adjust itself. But suppose that export prices could rise without volume being affected? Clearly in such a case it would be preferable to allow money incomes to rise and to leave the distribution of resources unchanged. It is too optimistic to assume that export volume could be permanently maintained at a higher level of prices, for if import prices fall again as is likely, so would foreign demand. But of course the probability of import prices falling again is also an argument against altering seriously the distribution of resources. It would appear then that the requirements of policy are twofold: first, the prevention, or at least not the increasing, of depression in affected sectors of the economy; and second, the limitation of price and income increases in order to prevent adverse long-run effects on the level of exports. Conventional monetary and budgetary policy is likely to achieve the latter at the expense of the former. A preferable solution would seem to be the direct cancelling out by a system of subsidies of the impact of rising import on end-product, and particularly wage goods, prices. This would prevent a further wage inflation, and the subsidies could be removed as import prices fell.

In fact the major counter inflationary action taken by the United Kingdom authorities in the significant period of the inflation was to raise the standard rate of income tax in the 1951 budget; and as a consequence of this, plus the normal operation of a progressive taxation system, direct taxes absorbed about 16 per cent. of the increase in personal incomes in the year. Consumer money demand was restrained but not, of course, rising costs and prices. Monetary policy was not deliberately employed until November 1951, and what part this played in bringing the inflation to an end is not certain. By this time the terms of trade were improving and any decline in fixed capital formation might be traced to the earlier fall in consumer demand. It is evident that monetary policy was not successful in checking the wage-price spiral which continued until the middle of 1952, and the very significant increase in personal saving, without which the inflation would have gone farther, is so far unexplained. Only the early application of a system of wage good subsidies could have prevented the wage-price spiral, but although a logical case could have been made out for such a policy, earlier misuse had caused it to fall into disrepute.

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TWO COMMENTS ON THE ARTICLES BY MRS. PAUL AND PROFESSOR HICKS

By PAUL STREETEN

THE following comments relate to two questions raised by Mrs. Paul and Professor Hicks.[1] The first queries Professor Hicks's assumption that short-period output has no effect on long-period costs in the conditions under discussion. The second examines the proposition advanced by Mr. Harrod and Mr. Andrews, and accepted by Professor Hicks, that the fear of potential rivals will result in a price which is lower and an output which is larger than those governed by the equation of short-run marginal cost and short-run marginal revenue.

1. In discussing his general formulation of the 'marginal-revenue marginal-cost' equation, Professor Hicks suggests that two simplifications can be made: 'In the first place, since the firm is under no compulsion to disclose its open-period price-policy during the close period, the effect of the planned long-period output on short-period revenue can ordinarily be taken to be zero. Thus $r_X = 0$. Further, since we are making the usual Marshallian assumption that the size of the plant is determined by long-period output only, short-period output will have no effect upon long-period cost. Thus $C_x = 0$.' He thus arrives at what he calls the standard form of the equations.

I am not concerned here with the first simplification, though it is worth remembering that there are clues to a firm's open-period price-policy, such as size of plant, profits earned, possibility of entry, &c., and that it is not clear that firms do not take account in their pricing policies of the public's knowledge of these clues. Furthermore, by offering to buy more in the future (in the open period) if more is sold to him now, or by threatening to boycott if he is not supplied now, the monopolistic buyer can manipulate long-period sales so as to affect short-period revenue.

Is the second simplification warranted? Taking account of marginal user cost, which is defined as the increase in net depreciation of assets which the marginal production is expected to involve, we have to allow for the repercussions of changes in short-period output (and price) on long-period cost. Although Professor Hicks speaks of the size of *plant*, the relevant concept for an examination of profit maximization is surely the

[1] M. E. Paul, 'Notes on Excess Capacity', *Oxford Economic Papers*, Feb. 1954, and J. R. Hicks, 'The Process of Imperfect Competition', ibid.

firm.[1] Marginal net depreciation for a firm consists of two quite distinct parts: (1) the expected change in the value of the assets owned by a firm, resulting from production, and (2) the amount that has to be spent in maintaining the value of the assets in buying raw materials, &c., from other firms. Thus if, for example, the assets of a firm are expected, as a result of the marginal production, to fall in value by £250, and if the marginal production will involve buying goods from other firms to the value of £100, then the marginal user cost, the expected net depreciation, is £350. If, on the other hand, the value of the assets is expected to increase by £250 and if buying goods from other firms will cost £100, the marginal user cost is minus £100. (2) is of no interest here. (1), the expected change in the value of the assets owned by a firm resulting from a change in production, can occur for three reasons: (i) stocks are used up and equipment is worn out; (ii) purchases from other firms allow stocks to be built up and equipment to be replaced; (iii) the selling of more goods now will alter the future buying and selling prospects of the firm and thus, in changing its future earning power, change the expected value of its assets. The future prospects may be improved or they may be worsened. Additional sales now may 'enlarge goodwill', or the lower price at which the greater output has to be sold may 'spoil the market'.

It follows that in any analysis into which time is introduced, variations in short-period output will have effects on long-period costs. These effects will depend on how long the short period lasts, and only by assuming that it lasts a negligible period of time can they be neglected.

Professor Hicks assumes that R_x is not equal to zero. But this assumption implies that the future earning power of a firm's properties is affected by changes in short-period output, which in turn implies that one element in long-period user cost is not equal to zero. If R_x is not equal to zero, C_x could be equal to zero only by accident.

Variations in short-period output will affect long-period user cost partly directly, by changing future buying and selling prospects, and partly indirectly, in a situation of oligopolistic expectations, by affecting expectations about entry of rivals. Thus if, by a low-price policy, rivals are expected to be kept out and goodwill is expected to be greater than it would otherwise have been, the marginal user cost of producing more output now than would be indicated by purely short-run considerations, is negative. The policy amounts to a sacrifice in short-run profits in order to reduce long-run costs.

2. Mr. Harrod maintains that, by setting a price lower and by producing an output greater than those governed by short-run profit maximization,

[1] The following owes much to the teaching of Mr. W. M. Allen, who, however, is not responsible for the use made of it.

a firm can deter rivals from entering the market. Professor Hicks agrees, setting the assumptions out more clearly by calling the situation one of oligopolistic expectations.[1] Mrs. Paul criticizes this view, but, as I understand her, fails to bring out one simple fallacy in this argument.

The argument is roughly this: Excess profits are an incentive to entry. By lowering price and increasing output, established firms avoid making excess profits. Hence the incentive is removed.

The fallacy consists in mistaking the existence of excess profits for a *necessary* condition of entry, whereas it is, in the absence of obstacles to entry, a *sufficient*, but not a necessary condition.

Excess profits are an incentive to entry on the assumption that all profit opportunities—short-run as well as long-run—are being exploited. The absence of excess profits will have an entirely different effect upon rivals contemplating entry, according to whether it indicates an absence of profit opportunities, or a reluctance to exploit them. The latter will only have the effect of the former if it succeeds as a bluff, if it makes the potential rivals believe that profit opportunities are absent. No doubt this may be the case, but there is no presumption that it will be the rule. If we assume that the potential entrants see through the bluff, the absence of excess profits will be no deterrent to entry.

In Fig. 1 the established firm produces on Harrodian principles an output

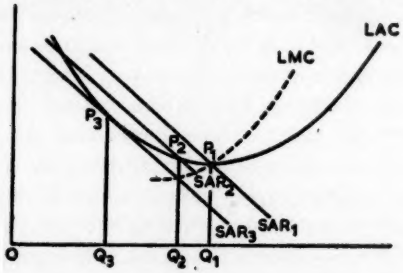

FIG. 1

OQ_1 at price Q_1P_1, just covering its long-run average costs, including normal profits. If this were an equilibrium position for the group, the entry of a new firm would have to spell subnormal profits for some, who would then leave. But in the case under consideration, nobody need be driven out, or if they are driven out, average cost pricing could not have prevented it. The short-run demand curve will shift to SAR_2, each of the established firms will produce less, thus accommodating the new firm, and each will be charging more, viz. Q_2P_2. Normal profits will be earned by each. There is nothing to stop the process of new entries until the point of tangency between the leftward shifting demand curves and the long-run average

[1] Loc. cit., pp. 49–50.

cost curves is reached. If there is further entry beyond this point, additional accommodation will no longer be available.

If the established firm, producing initially OQ_1 is neither guilty of fallaciously arguing that the mere absence of excess profits will keep out rivals, nor too optimistic about successfully bluffing its potential rivals into the belief of a perfectly elastic demand curve, it will have no reason to charge Q_1P_1 only. However perfect a sticker the established firm may be, if it anticipates this type of oligopolistic reaction, it would have nothing to lose and something to gain from maximizing short-run profits. Any sacrifice would be a pointless loss. It is not the case that 'the output needed to deter competitors will be, in the short run, too expensive to produce' (Hicks, p. 50)—but rather that it will not in fact deter the competitors. Harrod's argument is only valid if it can be assumed that the established firm, faced in fact with a demand curve SAR_1 (Fig. 2), succeeds in creating the false belief in potential rivals that its demand curve is SAR_2. But even then, as Mrs. Paul points out, it is not clear what it stands to gain from an average cost pricing policy.

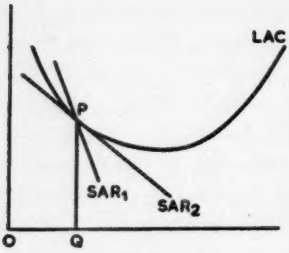

FIG. 2

But bluffing apart, it is difficult to see how Professor Hicks comes to the conclusion 'that there will be some short-period price which will be so low that it does all that can be done in the way of deterring competitors'. If the above argument is correct, no point on or above the *LAC* curve will have this characteristic, except where the relevant *AR* curve is, or is by potential rivals believed to be, tangential to the *LAC* curve.

So far, short-period cost curves have not entered into the discussion. There are two distinct questions: (1) What size of plant should a firm construct? (2) Given the size of its plant, what price should the firm charge? I have argued that on the premises commonly made in this kind of analysis, the firm can gain nothing from charging $P = AC$, given its decision on the size of the plant. On the other hand, by deciding on this size, it may be able to affect new entries. *Either* the established firm starts with plant SAC_1 (Fig. 3) in order to make hay while the sun shines (and it may anticipate it to shine for quite a long time). It may settle down later to a smaller plant SAC_3, when the threat of new entries has become real, or it may resign itself to being driven out. *Or* it sets out with plant SAC_3, forgoing the lower costs entailed in producing with a larger plant because it believes the profits to be short-lived and because it weights them lightly. It can, of course, still earn excess profits (though smaller ones than from the short-period optimum plant) until new rivals appear. *Or* again, it can

choose some intermediate plant, say SAC_2, compromising between the short-run advantages and the long-run drawbacks of a larger plant than is justified by long-period demand, allowing for rival entries.

Mrs. Paul makes the point (p. 35) that if *one* firm charges only $P = AC$, *other established* firms may charge more, and hence the first firm's demand curve will be 'pushed leftwards, and despite his caution he will find himself with too large a plant'. But the more fundamental trouble is that these leftward shifts will occur, even if all established firms charge only $P = AC$.

If an established firm sells at price QP_1 (Fig. 3) with plant SAC_1, a newcomer, setting up plant SAC_2, will be able to earn, in the short run, abnormal profits, while rendering SAC_1 redundant. Normal profits will be earned from plant SAC_3, at P_3. But whatever size of plant a firm chooses, average cost pricing will not prevent new entries, even if all other established firms pursue also an average cost price policy.

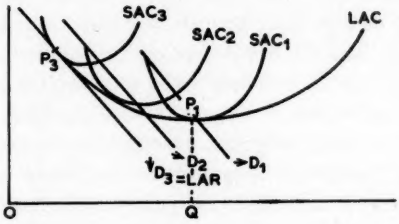

FIG. 3

The answers to the two questions raised on p. 262 are therefore:

(1) There will be a disadvantage in constructing a plant exactly right for short-run profit maximization if new entrants are expected to put up smaller plants within the life-span of the plant.

(2) Whatever the size of the plant, there is no advantage in charging $P = AC$, irrespective of (*a*) whether others follow this policy or not, (*b*) whether short-run or long-run profits are maximized, and (*c*) whether oligopolistic or polypolistic expectations prevail.

Yet, when this is said, it seems to be obvious that a monopoly or ring, by keeping price moderate and satisfying demand, makes it harder for outsiders to enter, whereas by keeping up price and restricting output it creates a situation which favours the development of substitutes. Common sense and observation confirm this. Various explanations suggest themselves:

1. An element of oligopoly or expected possible oligopoly is present in these situations. The low price set by the established firm is expected to affect the position of the demand curves of the new firms. It is surely this

common or garden oligopoly that Mr. Harrod and Mr. Andrews should have in mind, rather than the oligopolistic expectations of Professor Hicks, viz. one firm in polypolistic competition preventing new entry by its price policy.

2. It is quite probable that more than normal profits, perhaps substantially more, are required to induce new firms to enter, and that there are no indications of profit opportunities except the actual earnings of established firms. A low-price policy geared to normal cost would then prevent new entries. But against this it must be remembered that substitutes are often produced by existing firms adding new lines. In this case it is not so clear that normal profits are an insufficient incentive to entry.

3. Investment is neither made nor can it be reduced in continuous small steps. Each new-comer will bear in mind the possibility of too many new-comers enlarging capacity too much. But excess capacity will be worse if the price leader pursues a low-price, high-output policy than if restriction is the accepted method.

4. A low-price policy may lead to the accretion of goodwill to the established monopolist. This will make it more difficult to throw substitutes on the market, both because selling costs will be higher and because the demand curves for substitutes will be lower and flatter. A low-price policy may thus prevent entry, not *directly* by reducing expected profits, but *indirectly*, by making the demand curve of the established firm both less elastic and less cross-elastic. In other words, a low price, via goodwill accretion, may lead to monopoly in the old-fashioned sense. In this case, it will be possible to hold price even in the long run above average costs, and hence long-run profits above normal, except in that sense of 'profits' in which they tend, by definition, towards zero through capitalization of rents. Then, to sacrifice short-run profits in order to maximize long-run profits will be a rational policy.

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PRICE-LEVEL STABILITY AT FULL EMPLOYMENT: RECENT AMERICAN EXPERIENCE

By JOSEPH ASCHEIM

In his 1953 Sidney Ball lecture at Oxford,[1] Sir Douglas Copland considered the question of 'wages policy in a full-employment economy'. On the one hand, he observed, this 'is . . . a basic economic problem for all members of the free world with advanced industrial structures'.[2] On the other hand, he remarked, 'So far nothing very positive has emerged from the rather scanty economic literature that has appeared on this problem, and one is perhaps entitled to observe that those who embraced the doctrine of full employment too readily are perhaps a little chastened by the turn of events.'[3]

Sir Douglas is not alone in pointing to the significance of this problem or in implying some dissatisfaction with the inconclusiveness of its discussion by economists.[4] But unlike those who mention the problem only to drop it in short order, he presents an illuminating analysis of wage determination in Australia, with brief references to the United Kingdom, Sweden, New Zealand, and Holland.

The following pages are restricted to a consideration of post-war American experience in the matter of price-level stability, as affected by wage behaviour, at high employment. The position here taken minimizes the incompatibility between price-level stability and peace-time full employment in the United States.

I

Any meaningful discussion relating to full employment presupposes an explicit statement of what the concept of 'full employment' is taken to mean. The 'perfectionist' school—as Sir Douglas calls them—define full employment as 'having always more vacant jobs than unemployed men'.[5] The state of affairs implied in this definition has aptly been characterized by Professor B. Ohlin as 'over-full employment',[6] i.e. a situation of excess demand for labour. The demand for labour being derived demand, an excess demand for labour presumes an excess demand for commodities.

[1] 'The Full-employment Economy, with Special Reference to Wages Policy', *Oxford Economic Papers*, Oct. 1953, pp. 221–34.

[2] Ibid., p. 221.

[3] Ibid., p. 223.

[4] See, for example, A. Smithies, 'The American Economic Association Committee Report on Economic Instability', *American Economic Review*, May 1951, pp. 182–3.

[5] W. H. Beveridge, *Full Employment in a Free Society*, W. W. Norton and Co., 1945, p. 18.

[6] *The Problem of Employment Stabilization*, Columbia University Press, 1949, ch. 1, 'Aspects of the Economics of Over-full Employment.'

It follows that full employment as defined by the 'perfectionist' school necessarily involves an excess of aggregate monetary demand.

In the context of such an excess of demand (which in American experience accompanies or follows wars), inflationary pressure from the labour-cost side is likely to occur. Under inflationary demand conditions concomitant with a shortage of labour, increases of money wage rates may easily exceed the average rise in output per man hour with or without trade unions. The increase of efficiency wages (wage rates corrected for productivity) in the post-World War 1 period in largely unorganized labour markets is a case in point.[1]

It requires Utopian thinking to expect or beseech trade unions to restrict their money wage-increase demands to the average rise in productivity at a time when the pursuit of such a course would involve acquiescence in a noteworthy reduction of real wages. As early as 1938, before the *more recent* spread of cost-of-living sliding-scale provisions in collective bargaining agreements, Professor J. T. Dunlop, in refutation of J. M. Keynes, showed that 'with but one qualification, trade unions have been as willing to strike for advances in wage rates when the cost of living has risen by more than a "small" amount as to strike for the maintenance of a wage rate when threatened with a reduction. This "central tendency" of an empirical survey of wage negotiations has been strengthened in the post-war period.'[2]

Likewise, a curious myopia inheres in the expectation that (1) with a relatively high liquidity position which makes it possible to finance higher labour costs, and (2) amid the facility with which these cost rises can be translated into higher prices, employers would avoid granting inflationary wage increases. When demand conditions are buoyant and a general shortage of labour exists, employers are as unreceptive to counsels of economic stability as are trade unions.

A second definition of full employment is 'a situation in which employment cannot be increased by an increase in effective demand'.[3] This definition makes allowance for unemployment due to certain structural factors in the economy, viz. seasonal fluctuations in certain lines of activity, and the movement of persons, for whatever reason, from one job to another.[4]

It has been contended[5] that the practical effect of the two preceding

[1] Alvin H. Hansen, *Economic Policy and Full Employment*, McGraw-Hill Book Company, 1947, pp. 243, 322.

[2] 'The Movement of Real and Money Wage Rates', *Economic Journal*, Sept. 1938, p. 426.

[3] J. M. Clark, N. Kaldor, A. Smithies, P. Uri, and E. R. Walker, *National and International Measures for Full Employment*, United Nations Department of Economic Affairs, 1949, p. 13.

[4] Ibid., p. 12.

[5] A. Rees, 'Wage Levels under Conditions of Long-run Full Employment', *American Economic Review*, May 1953, p. 451.

definitions would be the same although their phrasing is different. The sole explanation offered in support of this claim is that 'Clearly, employment can be increased by increasing effective demand beyond the point at which the demand for and supply of labor are evenly balanced at existing wages.'[1] However, this contention ignores the important difference that exists between two situations in which the level of employment is the same but in one of which an excess of aggregate monetary demand prevails while in the other situation no such excess of demand is extant. A distinctive feature of the second definition of full employment is that it does not imply the inflationary demand conditions presumed by the 'perfectionist' school's definition, i.e. it does not imply over-full employment.[2] It may, however, involve an upward pressure on prices from the wage-setting side which requires a central-bank policy that will validate the resulting rise in the levels of costs and prices if the volume of economic activity is not to recede. Determination on the part of the monetary authority to resist such inflationary pressure presupposes (1) a national economic policy not committed in advance to the unceasing maintenance of full employment (as in the latter definition), and (2) preference of the margin of unemployment necessary for checking inflationary pressure from the labour-cost side to the results of central-bank acquiescence in such pressure.

The first pre-condition may be said to be fulfilled by American national economic policy. The second pre-condition can realistically be considered only in so far as the unemployment margin regarded as necessary for price-level stability is deemed tolerable in terms of the national economic policy pursued. If this margin were shown to be so large as to be precluded by national employment objectives, the mere consideration of a monetary policy of full resistance to inflationary pressure from the labour-cost side would become quite irrelevant. Much hinges, therefore, on the question relating to the approximate magnitude of the requisite unemployment margin.

II

The literature on the subject of wage-induced inflationary pressure betrays a rather remarkable diversity of estimates of the level of unemployment regarded as necessary for price-level stability in the United

[1] Ibid.

[2] J. M. Clark *et al.* explicitly state '. . . it is essential that steps should be taken to ensure that the stimulation of effective demand is carried only to the point required to maintain full employment and not in excess of this amount. Hence the policy of employment stabilization must also be effective in preventing an excess of effective demand which would be reflected in an inflationary rise in prices in relation to consumer incomes.' (op. cit., pp. 43–44).

States. On the one hand, Professor A. P. Lerner asserts,

> The special influence that causes wages and prices to rise even though the number of unemployed is much greater than what is made necessary by real frictions is the excessive bargaining power of the workers. If there are less than about 6 million unemployed in the United States of America, the bargaining power of the workers is excessive. The pressure for higher wages by workers is greater than the resistance to wage increases by employers, and wage rates tend to rise more rapidly than the over-all increase in labour productivity. . . . As wages rise costs rise and the prices of the products rise.[1]

Professor A. G. Hart seems to provide a still more alarming figure. He avers,

> Collective bargaining carried on by strong unions thus makes it likely that money wage rates will rise through time whatever the monetary situation is, unless there is serious unemployment . . . . As the labour market is now organized, it may take disastrously heavy unemployment (of from 8 to 10 million, say) to keep wage rates from rising faster than output per manhour and thus to keep wages from pushing up the price level.[2]

It is to be noted that no empirical evidence is offered by either Lerner or Hart in support of their respective estimates.

On the other hand, those who do introduce employment, wage, and price data as a basis for their estimates arrive at much less dismaying results. Thus, Professor J. K. Galbraith, who shows particular concern for the problem of price-level stability at full employment, states,

> [Some unemployed plant and some unemployed labour] is an absolute and inescapable requirement for stability in industries characterized by a generally developed counterveiling power. Some slack in the economy is what keeps counterveiling power from being converted into a coalition against the public.
>
> In peacetime the unemployment and idle capacity necessary for stability is not probably of great consequence. . . . We are not dealing here with the hopeless idleness of the thirties. An unemployment of four million in mid-1949 . . . except in a few industries appears to have been enough to rehabilitate counterveiling power in the economy. . . .[3]

Also taking the 'recession of 1949–50' as an example, Professor A. Rees observes,

> The maximum unemployment during this recession was 7·4 per cent of the total labor force; in fifteen months unemployment was above 5 per cent of the labor force and in four of these it was above 6 per cent. However, during this period the Consumers' Price Index fell 7·3 points or 4·2 per cent from its 1948 peak and wholesale prices fell considerably more.

[1] *Economics of Employment*, McGraw-Hill Book Co., 1951, pp. 193–4.

[2] *Money, Debt, and Economic Activity*, 2nd ed., Prentice-Hall, 1953, pp. 247–8. To the last sentence quoted above, Hart adds the footnote, 'This likelihood is reinforced by the interplay of wages and farm prices. . . . On the other hand, the great easing of wage pressure in response to moderate unemployment in 1949 suggests that the view in the text may be overpessimistic.' (Ibid., p. 248.)

[3] *American Capitalism*, Houghton Mifflin Co., 1952, pp. 203–4.

Thus the application of a price stability rule as a guide to monetary and fiscal policy would have kept unemployment below the levels actually reached in 1949–50. It seems that, given the present structure of American markets, a price-stability rule is unlikely to permit unemployment to exceed 5 per cent [or about 3¼ million persons].[1]

There appears to be little doubt that the 1949 recession does lend strong support to the last-quoted moderate conclusion. In the year 1949 unemployment averaged 5·5 per cent. of the civilian labour force; between December 1948 and December 1949 the Consumers' Price Index fell 1·9 per cent. and the Wholesale Price Index fell 6·9 per cent. Average Hourly Earnings of Production Workers in Manufacturing Industries rose, between December 1948 and December 1949, by less than ¾ of 1 per cent. (whether taken inclusive or exclusive of overtime), thus corroborating Professor S. H. Slichter's observation that, 'After unemployment had reached a certain level, probably around 4 or 5 per cent. of the labour force, the unions would not be able to raise wages faster than the average advance in output per man-hour [of about 2½ per cent. annually].'[2]

The year 1953 is interesting from the viewpoint of what may be expected in terms of peace-time price-level behaviour when unemployment is below the 4 or 5 per cent. mark. In no month during 1953 was unemployment above 3·0 per cent. of the civilian labour force; between December 1952 and December 1953 the Consumer Price Index rose only $\frac{7}{10}$ of 1 per cent. and the Wholesale Price Index only $\frac{4}{10}$ of 1 per cent.

In the light of the preceding evidence it would seem that with reference to the American economy there has been a good deal of exaggeration of the severity of the problem of price stability at high-level employment.[3] Such exaggeration probably has its roots in insufficient attention to, or even complete ignoring of, the important difference between wage behaviour in the context of 'the economy of the immediate post-war period, when demand was continuously in excess' and 'an economy in which some conscious effort is required to sustain demand at the appropriate level, not all the time but part of the time'.[4] To infer directly from wage-price developments in the former context to wage-price behaviour in the latter is a misguided step which is bound to yield misleading results.[5]

[1] Rees, op. cit., p. 457.

[2] 'How Bad Is Inflation?', *Harper's Magazine*, Aug. 1952, p. 55.

[3] Perhaps the most extreme case of such exaggeration is provided in C. A. Lindblom, *Unions and Capitalism*, Yale University Press, 1949.

[4] Sir Douglas Copland, op. cit., p. 234.

[5] Cf. the timely and well borne out observation by Professor Dunlop: 'A postwar boom provides a misleading setting in which to appraise the prospects of protecting high-level employment in more normal peacetime from inflationary pressures. The volume of deferred consumer good demand in textile products and durable items was unique. The extent of accumulated savings and liquid assets provided an exaggerated inflationary stimulus. A prolonged period of wage and price control created needed readjustments of prices and wages in a free market. The psychological repercussions of this release are not apt to be duplicated,

The most eminent American proponent of full employment (in accord with the second definition), Professor A. H. Hansen, observed in 1949, 'A margin of flexibility is provided by the 4 to 5 per cent. 'turnover' unemployment which must be assumed in any full-employment program.'[1] Today it may perhaps be agreed, on the basis of recent experience, that 'turnover' unemployment can be held at below 3 per cent. per annum. Professor Hansen, at any rate, now appears to subscribe to the lower figure. In commenting on the unusual price-level stability of the years 1951–3,[2] he has recently stated, 'And let it also be noted, and indeed underscored, that unemployment in the last three years—years of high price stability—averaged only 2·7 per cent. Most economists had formerly believed that it was not possible to achieve price stability with so low a level of unemployment.'[3] But assume that the 4 to 5 per cent. unemployment margin is still accepted as consistent with full employment. Then the conclusion is that, to date, there does not exist a sound basis for envisaging a Hobson's choice between price-level stability and the volume of employment which Professor Hansen proposed as an objective in 1949.

III

To those who have derived solace from Keynes's posthumously published observation that 'The United States is becoming a high-living, high-cost country beyond any previous experience',[4] the relative stability of behaviour of the American price level at high employment may appear, to put it bluntly, somewhat of a disappointment. If it is true that American wage-level behaviour is basically related to the progress of output per man-hour in the United States and relatively little to the

particularly in the labor market with the expiration of the no-strike pledge. There have been sharp changes in tax rates. The period has presented extreme and intensified conditions which must not be used to project the peacetime problem.' ('Wage-Price Relation at High Level Employment', *American Economic Review*, May 1947, p. 253.)

[1] *Monetary Theory and Fiscal Policy*, McGraw-Hill Book Co., 1949, pp. 113–14.

[2] Of which he says, 'Wholesale prices stood in December 1953 4·1 per cent. below the average for 1951, while consumer prices stood 3·5 per cent. above the 1951 level. Wholesale prices were slightly down; consumer prices (due largely to delayed rent increases) were slightly up. Together they represent a high degree of price stability. It would, I believe, be difficult to find any period in our history with so high a degree of price stability combined with so large a growth in output as the three years 1951, 1952 and 1953. Consider, for example, the quite peaceful years before the First World War. In the 15-year period before World War I, the annual increase in wholesale prices was 3 per cent. Compare this with the 1 per cent increase per annum from 1948 to 1954, a period be it noted which includes the Korean price spurt.' Joint Committee on the Economic Report, Congress of the United States, 83rd Congress, 2nd Session, *Hearings*, U.S. Government Printing Office, 1954, p. 852.

[3] Ibid., p. 853.

[4] 'The Balance of Payments of the United States', *Economic Journal*, June 1946, p. 185.

domestic advance in productivity in some countries suffering from the dollar shortage, it might strike some as desirable to induce American economic policy to aim at full employment of the 'perfectionist' type. But evidently the proposition that the United States 'should inflate' because other countries 'inflate' is a counsel of despair. It would, in any case, be highly risky to base a dollar-short country's hopes on the chance of gearing American domestic policy to the unceasing maintenance of full employment of the 'perfectionist' type.

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INVESTMENT AND LOCATION IN THE STEEL INDUSTRY—CORBY

By G. R. DENTON

Introduction

CORBY was the scene of one of the most significant developments in the iron and steel industry in the inter-war period, and as a result of this it now contains one of the major integrated plants in the industry. The full story of this development is a fascinating piece of economic history, but the present article is confined to the discussion of certain problems of the iron and steel industry that are illustrated by the experience of the past 20 years in Corby.

Firstly the timing of Stewarts and Lloyds' decisions with regard to the Corby development provides an interesting, though possibly rather disconcerting practical example of the relation between investment and the trade cycle. We may broadly say that we have here an example of semi-autonomous investment based on long-term expectations.

The importance of Corby as a case-study for our second topic is obvious. Dr. D. L. Burn and others have argued that a larger proportion of Britain's steel plant should be located on the East Midland orefields. The reasons for the building of the plant in Corby and for its success do not, in my opinion, support this view.

I. Investment Decisions

The reasons for Stewarts and Lloyds' decision, made in principle in 1929, and confirmed in November 1932, to build a new integrated plant at Corby illustrate the nature of investment decisions in the iron and steel industry in the inter-war period and present some unusual aspects when viewed in relation to theories of induced investment. Moreover, the negotiations for the financing of the Corby plant seem to call for a different interpretation from the usual of the effect of financial stringency on investment.

What induced the firm to invest over £3,000,000 at this time? Two common inducements to investment, a recent high rate of profits and a high current rate of production, were not present. Even 'normal' profits had not been obtained since 1924, and the ordinary dividend had fallen from 12½ per cent. in that year to only 5 per cent. in 1927 and 1928. An increase to 7½ per cent. in the semi-boom conditions of 1929 may be evidence of some return of confidence at the time of the initial decision, but in 1930 the dividend fell again to 3¼ per cent., and nothing was paid

in 1931 and in 1932, the year of the final decision to go ahead. Neither were there expectations of a greatly increased demand in the future, either short- or long-term, that could nevertheless have made the investment worth while. The most apparent source of 'great expectations' for tube-makers would have been the expanding oil industry, and the use of tubes for constructional purposes in the building boom of the 30's. But the oil industry took only 10 per cent. of Stewarts and Lloyds' output in 1929, and the same proportion in 1939. It was not till after the war, with the development of refining in the United Kingdom, and the acceleration of oil production, that tubes for oil rose to 30 per cent. of the firm's output. In any case, the Corby plant was planned not for oil pipes but for smaller tubes. The use of tubes for building and other construction was long delayed, despite their superior strength–weight ratio, owing to technical difficulties encountered in the joining of tubes. Only recently have Stewarts and Lloyds opened a factory in Liverpool to develop the market for constructional tubes. The building boom would have had some effect on the traditional tube markets, the gas and water industries, and on some of the more indirect uses of tubes—but this stimulus can scarcely have been evident in 1929.

Then why did Stewarts and Lloyds choose at that time to undertake one of the largest and most striking schemes of the inter-war steel industry?

We may read their own statement:

> Stewarts and Lloyds' English works drew both open hearth and Bessemer steel from Bilston (Alfred Hickman's) but no greatly augmented demands could have been met from that source. The Scottish works, however, though supplied with open hearth steel from Clydesdale, were forced to import basic Bessemer steel from the Continent. The good welding qualities of Bessemer steel make it highly suitable for modern large-scale methods of making smaller welded tubes, while open-hearth steel is requisite for certain specifications. Consequently, sources of supply—not liable to interruption, either commercially or in the event of war—were of vital importance to prevent the possibility of the Company being 'held to ransom' particularly in view of the greatly increased competition then being experienced from the Continent as our export trade developed.[1]

There is no suggestion that the danger mentioned had actually come to pass. Dependence on the Continent had been increased by the dumping policies of the Continental Steel Cartel, but this only meant that Stewarts and Lloyds were getting their steel more cheaply. Why should they have been afraid of importing their basic steel supplies? After all, the greater part of British industry uses imported raw materials. Basic Bessemer steel was required and the Continental makers had a real advantage over the British industry at that time in its manufacture by the Gilchrist–

[1] *Stewarts and Lloyds Review*: special 1953 number entitled *Stewarts and Lloyds Limited 1903–1953*, pp. 48 and 51.

Thomas process, using the high-phosphorus ores of the Lorraine. Though the Thomas method had been discovered in this country our advantage had seemed to lie rather in high-grade steels. For a long time we had clung to the acid process for making the high-carbon steels particularly suited to our main products in the late nineteenth century. Even when, after the First World War, the basic method became predominant in the United Kingdom, we still concentrated on the open-hearth furnace with its greater quality control and using imported high-grade ores. If the mass-production of small ranges of tubes could not be most efficiently carried on with the steels in which Britain had an advantage, why should we not import the basic Bessemer steel required? Makers of other 'softer' finished steel products were in the same position. Wire, screws, tin-plate, were all increasingly made from imported semi-manufactured steels. This was not even a new situation: it had been apparent before the First World War. In attempting to understand why a change was thought desirable in the 20's we can only accept the explanations given by Stewarts and Lloyds; first, that they were afraid of being 'held to ransom' whenever this might suit the continental suppliers, and, secondly, that in the event of war, supplies of strip would be entirely cut off.

A strong general motive however appears when we look at the firm's history. They were formed in 1903 by the amalgamation of Stewart and Menzies of Glasgow and Lloyd and Lloyd of Birmingham, who had come to dominate respectively the Scottish and the English tube-making industry. From that date the combine's policies had been in line with the general trend in the iron and steel trades: to secure the control of all the stages of production, from the mining of coal and ore through the coke-ovens and blast furnaces, to the steel plant, the rolling mills, and the finished products. This process had even led to the acquisition by British firms of foreign ore-fields, particularly in Spain. Dependence on imported steel remained a major gap in the firm's control of production for their Scottish interests. They had in 1920 acquired as part of the backward integration, Alfred Hickman's, who supplied the English tube works, and at the same time they had acquired through a Hickman's subsidiary the ore-fields in Northamptonshire. It seems a fair proposition that had the steel for the Scottish works come from another British firm, they would have done their utmost to acquire that firm. The only solution in the circumstances was to build their own steel plant to replace the continental suppliers.

We now have some notion of the motives for the investment at Corby. But why was it undertaken at this particularly unpropitious time, when all the usual incentives to investment were absent? Perhaps some explanation can be found in the fact that the enthusiasm for rationalization

was particularly strong at that time. If the basic British industries were technically backward and in a poor competitive condition, bold investment might provide the answer. The criterion by which schemes could be judged was the prospective reduction of costs.

The Corby plant could, and did, fulfil this requirement. The possibility of building a new steelworks was contemplated in the early 1920's, but the decision to move to Corby was made in 1929, subject to a favourable report from Brassert's, the American firm of contractors to the steel industry, who surveyed their whole field of operations, and in February 1930 recommended the new integrated plant. This would in fact secure on British soil the most important advantages of the continental makers. Basic Bessemer steel, which had died out in 1925, was to be reintroduced, with the added advantages of a site on the home ore-fields and the complete integration of processes from the ore-mining to the finished tubes. The ores would be extremely cheap, obtainable for many years by open-cast methods, with hauls of only a few miles on the firm's own mineral railways to the works. The transport costs of steel from the Continent would also be saved. Complete integration and the latest technical advances would give great fuel economies. Not only did Stewarts and Lloyds have confidence in their ability to replace continental supplies of semi-manufactured steel without increasing the price of their final product, but the new plant would make them the cheapest producers of tubes in Europe.

Time-lags between the initial decision to invest and the implementation of that decision may confuse the answers to the usual questions about the relation between investment and the trade cycle. The initial decision in principle to reorganize Stewarts and Lloyds' activities was made in 1929. Not until November 1932 was it finally decided to put the Corby scheme into effect. Many of the relevant factors had changed meanwhile and we must be extremely careful in our interpretation for this reason.

In late 1932 reviving demand due to the housing boom may have been apparent on the order-books, or at least such a prospect may have been indicated by the returns of housing plans passed. In 1929 this would not have been the case: but then the deeper plunge into depression in 1930 would also not have been foreseen.[1] Similarly we cannot judge clearly the effect of the 'costs-of-capital-investment' factor on Stewarts and Lloyds because in 1932 capital costs were far lower than in 1929. Not until Brassert's second Report late in 1931 was a firm and detailed estimate available. A rising price-level could be expected as the country

[1] In the accounts of the state of the industry in 1930 in the *Times Review of Trade and Engineering*, the outstanding feature is the continuing confidence that the depression was only temporary, and the ever-present expectation of a revival.

recovered from depression, and 1932 was obviously a good year in which to incur capital expenditure already sanctioned by other considerations, but then how are we to account for the initial decision in 1929 on this ground? Again, the rate of interest was quite high in 1929 whereas in 1932 it was very favourable. The import duty of March 1932 was an apparent and necessary stimulus to much of the reorganization of the steel industry in the 1930's. In this case however it appears rather to emphasize the correctness of the original decision of Stewarts and Lloyds to free themselves from dependence on supplies whose amount and cost could be thus arbitrarily changed.

Mr. Andrews and Miss Brunner in 'Capital Investment in Steel' give a rather different interpretation of the Corby investment in respect of the Import Duty. Corby is first mentioned (p. 94) in the context of the vigorous expansion *following* the tariff, and then used (p. 95) as an example of the time-lags in investment. Thus: 'the slump would postpone the implementing of the decision but as soon as the tariff was put on, the firm could go ahead on what was now clearly a profitable development'. It does not appear, however, that the delay in implementing the decision was caused by Stewarts and Lloyds' doubts but rather by the time needed to arrange for financial help. Mr. Andrews himself has shown that the chief limiting factor to investment by the United Steel Companies in the 1920's and early 1930's was financial stringency. So it was in the case of Stewarts and Lloyds.

Dr. Burn has described the financial situation of the iron and steel industry in the 1920's and the role of the bankers in forcing amalgamations and reorganization on a reluctant industry, with some critical emphasis on the failure of the iron and steel firms to put their own house in order. A different aspect of the financial situation is shown at Corby. Unprofitability caused by high costs was often, in the conditions of the 1920's, an incentive to investment. But, more obviously, it was at the same time an impediment. Where was the money to come from? Presumably from the banks, who were already 'carrying' several unprofitable industries, and would henceforth give extra help only for schemes that held out some hope of reimbursement. The Bankers Industrial Development Corporation was established for this purpose.

Stewarts and Lloyds were no exception: they had not the funds to carry out their scheme, and the project was hawked round the City from the date of the initial decision. But in this case the financiers were far more cautious than the industrialists. Technical opinion outside the firm was adverse to the scheme—heavy losses were forecast—and it is greatly to the credit of the company that they held fast. It was not until February 1932 that the Bankers Industrial Development Corporation agreed to

finance a modified scheme requiring £3,300,000.[1] The greater part of the steel plant at Corby was not in operation until 1935, six years after the first decision was taken. Of this period, two years may be attributed to delays in planning and obtaining financial support.

We may note in passing that if, as seems likely, this delay was partly due to fears engendered by the depression, the implications for full employment policy are serious. Would it take as long to launch a similar bold and imaginative scheme in the 1950's? Perhaps the financial machinery would work a little more quickly—the financial institutions are now well established—but on the other hand there would be more elaborate planning controls that might cause delay.

Certain other large-scale investments in steel in the 30's were held up by negotiations for financial support; for example the John Summers continuous wide-strip plant at Shotton required negotiations with United Steel and the Bankers Industrial Development Corporation. Nor was planning unimportant even at that time as can be seen from its effect on the location of the similar Richard Thomas scheme which was finally sited in a depressed area in order to spread employment. It is also ironical that this investment at Corby, so reluctantly and tardily supported by the Bankers Industrial Development Corporation and subject at the time to much adverse criticism, should now be held up as a shining example to the rest of the industry. For, as we shall discuss in the next section, the locational advantages, however important in the Corby venture, do not suggest that similar sites would necessarily benefit the rest of the industry.

II. Location in the Steel Industry

The arguments that the steel industry's policy even in the later 1930's when finance was more readily available for investment was one of 'patching' rather than of bold integration, are inevitably linked with those criticizing the choice of locations for the new plant that was built. 'Patching' took place in the traditional locations of the industry: there was at least a good chance that any new integrated plants would be placed in the Midland ore-fields, combining the advantages of cheap ores with those of the integration of processes. This we have seen was the case with Stewarts and Lloyds, and in view of the firm's success there is a temptation to argue that it would have paid a large part of the industry to join it. Yet there was no further movement into the more untapped area of Northamptonshire in the 30's, although there were some important expansions of blast furnace capacity particularly by United Steel at Appleby-

[1] It is true that Brassert's Second Report, giving the cost estimate, was not available until late in 1931, but the rough magnitude of the scheme was known from the date of the First Report in February 1930, and yet it was not possible to obtain financial support for two years.

Frodingham in Lincolnshire. Moreover, the Steel Development Plans since the war have shown only a slight bias towards expansion in the Midlands. Some of the reasons why it may not pay other firms to follow Stewarts and Lloyds' lead appear very clearly when we consider whether the main advantages enjoyed by Stewarts and Lloyds could also be obtained by additional firms.

Firstly there is the question of the cost of capital investment. Mr. Andrews has suggested that the industry since the war may be repeating the experience of the period 1914–20 in carrying out a large programme of both expansion and replacement of capacity at a time of high capital costs. The argument only applies of course if we assume that costs are going to fall at some time in the near future. While a work of expansion or replacement may be undertaken in view of a high current demand despite high capital costs, these may still have a great effect on locational considerations. The margin between the cost of building a plant on a new 'green-field' site or on an established site will have been multiplied in current money values, and an economy in this direction may well be felt advisable. The British Iron and Steel Federation has expressed its relief on finding that much new plant originally designed for replacement purposes has in fact been used together with the old which has been retained in use to expand total output. But also in the one case where a new 'green-field' plant had been planned the high cost of site works played a part in the decision to abandon this part of the Development Plan. Instead of a new plant (to have been sponsored by Stewarts and Lloyds and the United Steel Companies), which would have increased Northamptonshire's pig-iron output by 1,000,000 tons, the expansion was concentrated at Corby, so that many of the costs of developing a brand new site could be avoided. Since so many of the present firms are located in the traditional areas, this relative cost factor may have influenced the expansion of capacity there. More important perhaps, the shortage of real investment resources will have tended to concentrate expansion of capacity where it can soonest come into production.

The other major costs involved in relocating steel plant on new sites are the social costs. But in so far as Corby continues to take population, mainly from Glasgow, which would in any case require to be rehoused in New Towns in accordance with the national policy of preventing the further expansion of conurbations, the social costs involved cannot be attributed to the change in location of the steel industry. More important than the social costs has been the physical limitation to expansion of steel production due to the inability to build houses quickly enough. The first postwar Development Plan had a moderate bias towards the home ore-fields, including a planned increase of one million tons in the

Northamptonshire output. When the 'green-field' scheme was abandoned, Stewarts and Lloyds were expected to expand their production from 600,000 to 1,250,000 tons p.a. But even this limited plan has so far failed owing to the housing delay.

In the 1930's the local authority, then the Kettering Rural District Council, did not feel able to undertake the building of the houses required for Stewarts and Lloyds' workers at Corby, and the firm itself had built 2,150 houses by 1939. The population rose from 1,500 in 1932 to over 10,000 in 1939. In the latter year an Urban District Council was created to meet the problems of the growing town, and in 1949 the New Towns Act was applied. In order to support the 10,000 steelworkers required, a town of 40,000 people was envisaged by 1960, with all amenities and the introduction of service and other light industries to provide balanced employment. But in 1954 the population was still under 20,000, and owing to the housing shortage it had only been possible to expand output to an annual rate of 850,000 ingot tons.

Perhaps the time required to plan and build a town for a steelworks employing 10,000 men has been underestimated. The experience of the United States suggests that we have failed to master the techniques of rapid provision of housing. This is an example of the impossibility of considering the efficiency of one particular industry without relating it to the rest of the economy. Can we say that the British Iron and Steel Federation's plans have not been bold when delay in another sector of the economy has prevented the achievement of what they did plan?

In a report in February 1955 the Iron and Steel Board noted that the locational problem was being reconsidered at the highest level. Meanwhile, their revised Development Plan for the period 1953–8 is based on an expansion of imported ores to 16 million tons; no less than nine-tenths of the increase in output by 1958 is to come from these imported ores. Increased demand is expected particularly for rolled products, sheet and strip, whose production is largely concentrated in South Wales. Too much importance is often attached to the indivisibilities of modern steel production: the Steel Board is apparently still confident that the capacity of its three continuous-strip plants is sufficiently elastic to make unnecessary the laying down of a completely new plant.

More important than the current possibility and advantage of building new plants in the Midlands are the long-term prospects. Mr. Andrews has briefly noted that the ore reserves in Northamptonshire are not unlimited.[1] Reserves have been developed, worked out, and abandoned at various places in the United Kingdom over the centuries, and the industry has

[1] Loc. cit., p. 98.

moved on to new fields or to coastal sites using imported ores. But the estimates—such as they are—of the extent of the Northamptonshire ores, together with their present rate of extraction, do not suggest that the long-term advantages may be such as to warrant the more ambitious schemes for expansion sometimes proposed for this area. Admittedly, it is difficult to arrive at an accurate estimate of the amount of accessible ore remaining in the Northamptonshire field: in a geological survey of 1943 the ores cautiously described as 'possibly workable' far outweighed the 'known workable' ores. In addition to the difficulty in judging the extent and depth of the reserves, technical improvements are continually affecting the possibility of working the less accessible deposits: some ores are at present being mined by open-cast methods, using the latest drag-line equipment, which would have been unobtainable except by underground mining before the war. The B.I.S.F. estimated however in 1952 that at the rate of extraction in that year—8·6 million tons per annum—the Northamptonshire ores would last about 150 years. At present less than 5 per cent. of British steel is produced in Northamptonshire and a doubling of this proportion—no very great measure of relocation—would reduce the probable life of the field to 75 years.

In deciding what relocation may be achieved, this probable life of the reserves must be balanced against the economic life of a modern steel plant, which is usually estimated at about 50 years. Moreover, new steel towns in the Midlands are likely to remain highly dependent on the steel industry, despite attempts to diversify the employment they can offer, and some account must therefore be taken of the economic life of the social capital that must accompany steel development on a new site. This must be assumed at the very least to be as great as the period for repayment of local authority housing loans, which is 60 years, while a reasonable estimate might be considerably higher. We can only conclude that, while the argument is beset with factual uncertainty, the best estimates and assumptions do not suggest that the expansion of steel capacity in Northamptonshire should be more than marginal. Unless the new survey of home resources of iron ore now being undertaken produces startlingly different results from the 1943 survey, it would seem that Stewarts and Lloyds may well remain the only large steel-makers in Northamptonshire.[1]

[1] We may also note that the Lincolnshire field, developed sooner and to a greater extent than the Northamptonshire field, is expected to be exhausted even earlier.

SOME THOUGHTS ON MARXISM, SCARCITY, AND GOSPLAN

By RONALD L. MEEK

I

MR. WILES'S stimulating 'survey of the incompatibility of Marxism with "scarcity" economics'[1] has been frequently referred to, but seldom commented upon in any detail, by a number of workers in economics and related fields. The present article sets out not so much to criticize as to clarify some of Mr. Wiles's basic propositions, and to place them in what I believe to be a rather more correct perspective. In particular, it seeks to explain exactly what we mean—or at least what we ought to mean—when we say that Marxism is 'incompatible' with '"scarcity" economics' that Marx 'neglected scarcity',[2] and that the Soviet economy has 'no grasp of the problem of choice'.[3]

In its broadest sense, the term 'scarcity problem' is generally taken to mean something like 'the problem of the most effective allocation of given means among competing ends'. In actual practice, of course, the economists interested in this problem have usually limited themselves to elucidating the relationships between means of a particular type and ends of a particular type. The 'given means' in which the economist as such is primarily interested are the resources (in the sense of factors of production) available in a country at a particular moment. The 'competing ends' in which Western economists today tend to be primarily interested are those embodied in the preference schedules of consumers. In other words, the *particular* 'scarcity problem' with which Western economists are at the moment specially concerned is that of the most effective allocation of a given set of productive resources among the competing ends embodied in consumers' preference schedules.[4] So far as the solution of this problem is concerned, economists have generally started with an analysis of the way in which the allocation would in fact be carried out in a competitive capitalist economy in which (*a*) the consumers expressed their preferences in price offers, and (*b*) the producers were 'subject to the pull of demand and profit'.[5] In a socialist economy, where condition (*b*) would not automatically hold, it is then often suggested, the allocation would necessarily be 'irrational' (and prices 'arbitrary')

[1] 'Scarcity, Marxism, and Gosplan', by P. J. D. Wiles (*Oxford Economic Papers*, vol. v, no. 3, Sept. 1953, p. 288).

[2] Ibid., p. 289. [3] Ibid., p. 294.

[4] The term 'scarcity problem' will henceforth be used to refer to this particular problem.

[5] Wiles, op. cit., p. 288.

unless the State organized production according to certain rules which in effect produced the same allocative result as would be produced in the competitive capitalist economy just analysed.[1]

What, then, do we mean when we talk about the 'incompatibility of Marxism with "scarcity" economics'? We may mean any of a number of different things, between which Mr. Wiles, as it seems to me, does not always take sufficient care to distinguish. If we are referring to Marxism as a theory of capitalism, we may mean that it pays no attention to the way in which any problem involving choice between alternatives is solved under capitalism; or that it pays no attention to the way in which the particular 'scarcity problem' in which non-Marxist economists are now specially interested is solved under capitalism; or that it does not regard the analysis of the way in which capitalism solves the latter problem as the central core of economic theory; or that its account of the solution of this problem under capitalism differs radically from the account given by non-Marxist economists. Similarly, if we are referring to the attitude of Marx and Engels and their followers to the question of the organization of a socialist economic system, we may mean that they ignore all problems involving choice between alternatives under socialism; or that they ignore the particular problem of allocation which interests non-Marxist economists; or that they do not give priority to the task of solving the latter problem; or that the solution of this problem which they adopt is different from that advocated by non-Marxist economists. These are some of the things which we *may* mean: which of them exactly *do* we mean?

II

The first question to be answered is that of the attitude of Marxism, considered as a theory of capitalism, to problems involving choice between alternatives. Mr. Wiles tells us that '"scarcity" arose out of the subjective theory of value'.[2] The connexion between 'scarcity' and the subjective theory of value, he says, is extremely intimate, 'for the latter theory, being the first to emphasize demand, was the first to raise the question of the ends of economic activity in any detail. But once we start seriously considering economic ends, whether of the consumer or of the State, we see at once that they compete, and "scarcity" economics begins'. Marx, however, 'seems never to have written one word on the subjective theory of value itself.... *A fortiori*, then, he neglected scarcity'.[3]

[1] In the consideration of the problem under socialism, of course, the range of 'competing ends' is often extended to include also certain of the preferences of the planning authorities —i.e. of the State.

[2] By the 'subjective theory of value', as the context makes clear, Mr. Wiles means to refer to the theory in the form in which it was popularized as a result of the marginal revolution.

[3] Wiles, op. cit., p. 289.

This argument hardly seems very plausible. For one thing, 'the question of the ends of economic activity' was surely raised in quite considerable detail many years before the marginal revolution. The idea that ends compete for available resources was just as obvious to Adam Smith as it was to Menger. Chapter 7 of Book I of *The Wealth of Nations* contains, indeed, as is well known, the classic account of the manner in which 'the whole quantity of industry annually employed in order to bring any commodity to market, naturally suits itself . . . to the effectual demand';[1] and there is an important sense in which the question of the allocation of scarce resources between production for the present and production for the future can be said to have constituted the very subject of *The Wealth of Nations*. Thus Mr. Wiles's explanation of the reason for the association which undoubtedly does exist between the 'subjective theory of value' and scarcity economics is untenable. A more useful way of looking at the problem of their connexion, it seems to me, is to regard the marginal utility theory as arising out of the scarcity problem, rather than vice versa. It appears quite likely that the development of the marginal utility theory in the 1870's and after was due, at least in part, to a recognition of its peculiar applicability to the problem of the allocation of a given set of resources in accordance with consumers' preferences—a problem which for various reasons was then beginning to rise to a position of much greater prominence in the minds of economists. But however this may be, it does not follow in the case of Marx, any more than it does in the case of Smith, that simply because he said nothing about the marginal utility theory of value he *therefore* 'neglected scarcity' in any really significant sense of that phrase.

But Mr. Wiles suggests another reason for Marx's alleged neglect of scarcity. 'A system of economics in which all costs are constant with changes in output', he says, '—for of such a kind must all systems be which base value upon cost alone, be it labour, time, or money cost—is peculiarly ill adapted to any form of scarcity concept. . . . For if quantity has no influence upon cost (since cost is constant) nor upon utility (since utility is neglected), the attention of the economist is not likely to be directed towards quantities of production at all. All the more then will he neglect the question of relative quantities, i.e. the allocation of scarce resources.'[2]

This argument is plausible only if we suppose that the labour theory of value, which rests on the assumption of constant costs for the industry as a whole (under given conditions of technique), was a purely arbitrary and dogmatic construction, whose character largely determined the nature of

[1] *Wealth of Nations*, vol. i (Cannan edn.), p. 60.
[2] Wiles, op. cit., pp. 289–90.

the problem in which the economists who used it were primarily interested. If we suppose instead, as I think we must, that the assumptions upon which the theory rested were arrived at as a result of at least some study of actual economic tendencies, and that the character of the theory did not determine but was rather determined by the problem in which the economists were primarily interested and their general attitude towards it, the argument falls to the ground. For in that case, the very fact that the economist makes a specific assumption about the effect of changes in quantity upon cost means in itself that his attention *has* been directed towards 'quantities of production'; and it is no longer legitimate to explain his relative lack of interest in the 'scarcity problem' in terms of his acceptance of a particular theory of value which he has worked out in order to assist in the solution of a different problem. In addition, it is perhaps pertinent to ask whether the rehabilitation of the assumption that 'all costs are constant with changes in output', which has to some extent taken place in our own time, has had any noticeable effect in drawing the attention of economists away from the 'scarcity problem'. If we decide, in our approach to the problem of value, to assume as a first approximation that changes in the pattern of demand for commodities will affect the relative quantities of each commodity which are produced but will not affect their long-term equilibrium prices (which is all that the Classical assumption amounted to), I cannot see how this will in itself diminish the amount of attention we are likely to pay to the 'scarcity problem'.

The important point here, surely, is not that one's attention is likely to be directed away from the 'scarcity problem' by the assumption of constant costs, but rather that one's attention is likely to be directed towards it by the assumption of constant resources. And the latter assumption played a relatively subordinate role in Classical and Marxian political economy. As Professor Myint has said, Classical political economy 'concentrates on the methods of increasing the quantity and the physical productivity of resources as the most important means of increasing economic welfare', in contrast to modern 'scarcity' economics which 'provisionally assumes that there is no further possibility of increasing the total quantity of resources and concentrates on the possibilities of increasing economic welfare by a more efficient allocation of the *given* resources'.[1] The Classical economists (and Marx) were above all concerned with the problem of the dynamic development of the capitalist economic system through time. And here their main attention was naturally directed towards the accumulation of capital. The Classical and Marxian systems (including their theories of value) were primarily designed to illuminate

[1] Hla Myint, *Theories of Welfare Economics*, p. xii.

the nature and effects of the accumulation process under capitalism. Since accumulation was evidently closely related to the pattern of distribution, the question of the determination of the distributive shares necessarily came up for consideration—and this was of course a question in which a theory of value (in the sense of a theory giving a determinate causal explanation of relative prices) had to play a prominent part. The question of distribution, however, presented itself in rather different ways to Smith, Ricardo, and Marx respectively. Smith was anxious above all to attack certain social institutions which still hindered accumulation, and certain social attitudes which still discouraged it. For this purpose, all that was really required was a general analysis of the accumulation process and an account of the manner in which accumulation and the increase of wealth were related. The question of the distributive shares could be safely relegated to a secondary and subordinate position. To Ricardo, on the other hand, the question of the distributive shares—and in particular the question of the changes which took place in the proportions in which the social surplus was distributed between landlords and capitalists as the economic system developed—assumed supreme importance, since it had then come widely to be supposed that profits, rather than rents, were by far the most important source of capital accumulation. To Marx, too, the question of the distributive shares was vitally important, but to him it was the distribution of the product between capitalists and labourers which appeared paramount, since he was above all anxious to show that the relation between these two classes was in essence an exploitative one in spite of the existence of a free market for the great majority of commodities (including labour-power), and that the nature of this relation was largely responsible for the emergence of certain serious 'contradictions' as the accumulation process developed. All three economists, however, in spite of the manifest differences between their approaches, were mainly concerned with the problem of the dynamic development of the capitalist economic system through time—a problem in which a theory of distribution (and therefore a theory of value) necessarily played an important role.

This did not mean, however, that certain leading ideas which we today generally associate with the 'scarcity problem' were alien to them. A knowledge of the 'laws of motion' of the capitalist system could hardly be obtained, for example, without some knowledge of the mechanism by which resources were distributed in order to satisfy consumers' preferences under that system. The classic account of this mechanism, as I have already mentioned, was in fact given by Smith,[1] and it was specifically

[1] Cf. Robbins, *The Nature and Significance of Economic Science*, pp. 68–69. I must not be taken, however, as agreeing with Professor Robbins's assessment of the role played by the theory of value and distribution in the Classical analysis.

accepted in its essence (and to some extent developed) by both Ricardo[1] and Marx.[2] In addition, it is worth noting that the labour theory of value itself was in an important sense derived from the fact of the allocation of the 'scarce' factor labour in accordance with the needs and demands of society. The intimate connexion between the theory of value and the concept of the social division of labour in *The Wealth of Nations* has not, I think, been sufficiently commented upon. And with Marx the connexion was made quite explicit. 'In the determination of value', Marx wrote, 'the question turns around social labour time in general, about that quantity of labour, which society in general has at its disposal, and the relative absorption of which by the various products determines, as it were, their respective social weights'.[3] The 'respective social weights' of the various commodities produced—i.e. the relative values of the aggregate output of each—were held to be determined by the relative quantities of labour from time to time allocated by society to their production. The unit value of each commodity, given this allocation, was of course determined primarily by technical considerations, but in order that the goods produced should be a 'commodity' in the Marxian sense, and thus possess exchange value, the labour devoted to its production 'must be subordinate to the *division of labour within society*'.[4] And finally, it should be emphasized again that the question of the allocation of resources between the production of consumers' goods and capital goods lay at the very heart of the problem of 'the nature and causes of the wealth of nations' with which the Classical economists and Marx were primarily concerned.

Summing up the attitudes of the Classical economists and Marx to problems involving 'scarcity' under capitalism, then, we can say that they paid a good deal of attention to the way in which capitalism solved certain important allocative problems. They did not, however, regard the analysis of the particular 'scarcity problem' in which non-Marxist economists are at present especially interested as the central core of economic theory. Their analysis of the inter-relationships between supply, demand, and price was conceived as a relatively subordinate part of their analysis as a whole; and Ricardo and Marx, if not Smith, would have construed as quite superficial any attempt to analyse the 'external' phenomena of the market without penetrating through to the real socio-

[1] Ricardo, *Works* (Sraffa's edn.), vol. i, p. 91.

[2] Marx, *Theories of Surplus Value* (English edn.), pp. 251–4.

[3] Marx, *Capital*, vol. iii (Kerr edn.), p. 1028. Cf. *Letters to Kugelmann* (English edn.), pp. 73–74. Cf. also the following passage from *Capital*, 'All the different kinds of private labour, which are carried on independently of each other, and yet as spontaneously developed branches of the social division of labour, are continually being reduced to the quantitative proportions in which society requires them.'

[4] Marx, *Value, Price and Profit*.

economic relations which were assumed to underlie them. The emergence of 'scarcity economics' in the modern sense had to await a time when economists began to consider it convenient to abstract from these socio-economic relations, and in addition to start out from the assumption of a *given* set of resources.

III

The question of the attitude of Marx and Engels to the 'scarcity problem' under socialism need not detain us very long. In this connexion, Mr. Wiles tells us that Marx 'consciously said nothing' about economic planning;[1] that Engels said nothing about scarcity in his correspondence;[2] and, generally, that since 'there is no Marxist micro-economics' there is therefore 'no grasp whatsoever of detail'.[3] Presumably Mr. Wiles does not mean us to take these statements too literally. He must be aware that although Marx indeed wrote no treatise on planning under socialism (unless the *Critique of the Gotha Programme* be so described), he did put forward a number of interesting *obiter dicta* on the subject; and that although Engels certainly made little direct mention of 'scarcity' in his correspondence, he did say a certain amount about it in his *Anti-Dühring*. And Mr. Wiles must also be aware that the statement that 'there is no Marxist micro-economics' is somewhat equivocal. If it be taken to mean that Marx had no theory of individual prices, or that he was unaware of the existence of the 'scarcity problem', it is obviously untrue. If it be taken to mean, on the other hand, that Marx was not *primarily* interested in individual prices or in the 'scarcity problem', then it is of course true, but adds nothing at all to what Mr. Wiles has already told us. Marx's economics, by and large, was in fact no more and no less a 'macro-economics of the *Stufenlehre* type'[4] than Adam Smith's. And there would be few, I think, who would complain that Adam Smith had 'no grasp whatsoever of detail'.

Consider the following quotations from Marx and Engels on the subject of 'scarcity' under socialism, all of which have been frequently referred to in the literature on socialist economics:

1. Every child knows that a country which ceased to work, I will not say for a year, but for a few weeks, would die. Every child knows, too, that the mass of products corresponding to the different needs require different and quantitatively determined masses of the total labour of society. That this necessity of distributing social labour in definite proportions cannot be done away with by the *particular form* of social production, but can only change the *form it assumes*, is self evident. No natural laws can be done away with.[5]

2. Only when production will be under the conscious and prearranged control of

[1] Wiles, op. cit., p. 289. [2] Ibid.
[3] Ibid., p. 291. [4] Ibid.
[5] Marx, *Letters to Kugelmann* (English edn.), p. 73.

society, will society establish a direct relation between the quantity of social labour time employed in the production of definite articles and the quantity of the demand of society for them.[1]

3. [In] a community of free individuals, carrying on their work with the means of production in common, in which the labour-power of all the different individuals is consciously applied as the combined labour-power of the community . . . [the apportionment of labour-time] in accordance with a definite social plan maintains the proper proportion between the different kinds of work to be done and the various wants of the community.[2]

4. It is true that even [under socialism] it will still be necessary for society to know how much labour each article of consumption requires for its production. It will have to arrange its plan of production in accordance with its means of production, which include, in particular, its labour forces. The useful effects of the various articles of consumption, compared with each other and with the quantity of labour required for their production, will in the last analysis determine the plan.[3]

It will be sufficiently evident from these quotations that Marx and Engels were well aware of the necessity for what Engels called a 'balancing of useful effects and expenditure of labour'[4] under socialism, just as they were well aware of the necessity for deciding on the proportion of the national income to be devoted to investment.[5] In fact most of the statements which they made about the economics of socialism were concerned precisely with problems involving 'scarcity'. It is true, however, that none of their statements went any further into the details of the matter than those which I have just quoted: as Mr. Wiles correctly says, 'Marx did not design his economics to assist in the planning of a socialist society'.[6] Marx and Engels never attempted to put forward any Lerneresque rules for the use of the future socialist planners.[7] In fact, they were very loath to put forward any planning rules at all, except of the most general character. One of the main reasons for their reluctance to do so was well stated by Engels in a letter to Schmidt of August 1890. Referring to a discussion which had recently taken place in a periodical on the question of 'the division of products in the future society', Engels writes as follows:

> The question has been approached very 'materialistically', in opposition to certain idealistic forms of phraseology about justice. But strangely enough it has never struck anyone that, after all, the method of division essentially depends on *how much* there is to divide, and that this must surely change with the progress of production and social organisation, so that the method of division may also change. But to everyone who took part in the discussion 'socialist society' appeared not as involved in continuous change and progress but as a stable affair fixed once and for all, which must, therefore, have its method of division fixed once and for all.[8]

[1] Marx, *Capital*, vol. iii (Kerr edn.), p. 221.
[2] Ibid., vol. i (Allen & Unwin edn.).
[3] Engels, *Anti-Dühring* (English edn.), p. 340.
[4] Ibid., p. 340, footnote.
[5] *Critique of the Gotha Programme* (English edn.), p. 10.
[6] Wiles, op. cit., p. 290.
[7] According to some commentators, Marx thought that the 'scarcity problem' under socialism would be solved with the aid of the labour theory of value—i.e. by making exchange ratios equal to embodied labour ratios. I do not feel personally that the quotations adduced by these commentators can legitimately be interpreted in this way.
[8] *Selected Correspondence* of Marx and Engels (English edn.), pp. 472–3.

This consideration, as we shall shortly see, is of some importance not only in relation to the general attitude of Marx and Engels, but also in relation to the attitude towards the 'scarcity problem' which is prevalent among their present-day followers in the U.S.S.R. today.

IV

Mr. Wiles tells us that 'the Soviet economy in the Plan era [has] no grasp of the problem of choice';[1] that in his discussions with Soviet economists in 1952 he could not discover 'a glimmer of a notion of "scarcity" ';[2] that the U.S.S.R. is a 'choiceless economy';[3] that there is 'no admission of "scarcity" to a central place' and therefore (*inter alia*) 'no adequate concept of economic welfare';[4] that there is a 'general absence of any scarcity concept, any theoretical criterion of economic choice';[5] &c., &c. These conclusions are based on an interesting examination of certain aspects of Soviet economic theory and practice, and in particular on a study of the well-known Soviet controversy on the effectiveness of capital investments. Mr. Wiles adduces several reasons for this 'choicelessness' (additional to the alleged influence, already mentioned, of 'an obsolete nineteenth-century *Stufenlehre*'),[6] and concludes by suggesting, somewhat unexpectedly, that Soviet experience shows that 'choicelessness' does not really matter very much after all.

I am far from wishing either to dispute the evidence which Mr. Wiles offers of 'the extreme arbitrariness of *relative* price setting'[7] in certain cases, or to gloss over the low level of some of the contributions to the investment controversy. Nor do I wish to deny that there is indeed a certain sense in which the nature of the 'scarcity problem' has not yet in fact been fully appreciated by the Soviet planners. My aim is rather to elucidate the sense in which this is true, to explain the reasons for it, and in the light of certain recent developments to venture one or two prophecies about future trends.

In saying that the Soviet economy has 'no grasp of the problem of choice' Mr. Wiles does not of course mean that scarce resources are not in actual fact allocated between competing ends. The figures in the plan, as he says, 'consist, by definition, of such allocations'.[8] And these allocations as a whole are not wildly 'irrational': in fact Mr. Wiles goes so far as to say in one place that 'of really obvious deviations from "rationality" one can name only a few'.[9] Nor does he mean to imply that the Soviet planners are not concerned with various problems relating to 'disharmonies' and 'disproportions' between different industries and

[1] Wiles, op. cit., p. 294.
[2] Ibid., p. 301.
[3] Ibid., p. 314.
[4] Ibid.
[5] Ibid., p. 304.
[6] Ibid., p. 314.
[7] Ibid., p. 294.
[8] Ibid., p. 299.
[9] Ibid., p. 314.

branches of the economy: his point here is simply that when they talk about 'disharmonies' and 'disproportions' they are nine times out of ten referring to problems of co-ordination rather than to problems of choice.[1] Nor, presumably, does he mean that there are not certain important problems of choice facing the Soviet planners—e.g. those of the allocation of resources between production for the present and production for the future, and between defence and opulence—which have to be solved 'arbitrarily' without reference to the market behaviour of consumers.[2] The main point which he is making is that 'there is no theory as to *how* [resources] should be allocated'.[3] In other words, given the State's preferences between present and future production and between defence and opulence, and given the consumers' preferences between different consumption goods, there is no set of price-and-output rules to ensure the 'rational' application of the available resources to the achievement of these competing ends. In what follows I shall be largely abstracting from the question of the allocation of resources between present and future, defence and opulence, &c., and concentrating in particular upon the problem of the allocation of resources towards the satisfaction of those preferences which Soviet consumers are able to express in their behaviour in the retail market.[4]

Among the reasons which Mr. Wiles adduces for the Soviet attitude towards this problem, apart from the pernicious influence of Marxist economic thinking with its alleged 'neglect of scarcity' and lack of 'grasp of detail', are the following: First, he remarks that it was left to 'Mensheviks, Labourites, Social Democrats, and other unworthy characters' to prove that public ownership was not in fact 'theoretically incompatible with rational choice', and that 'this historical sequence of events cannot have endeared the concept of "scarcity" to Soviet economists'.[5] Second, he suggests that the very name 'scarcity', with the implication of 'backwardness' which it may suggest to untutored and dogmatic minds, constitutes a reason for the unpopularity of the concept in the U.S.S.R.[6] Third, he argues that certain 'very precise Marxist texts, slogans, and habits of thought'—such as, for example, the idea that socialism represents 'a leap from the realm of necessity to the realm of freedom'—make scarcity an 'indigestible concept' in the U.S.S.R.[7] Finally, he refers to the 'Bolshevik temperament', which 'enjoys exercising power' and there-

[1] Wiles, op. cit., p. 300.

[2] On the question of the unavoidably political character of decisions on the rate of investment under socialism, see Lerner, *The Economics of Control*, pp. 262–3, and Lange, *Economic Theory of Socialism*, pp. 84–85.

[3] Op. cit., p. 299.

[4] I shall also be largely abstracting from the question of the extent to which these preferences are modified by positive State action.

[5] Wiles, op. cit., p. 292. [6] Ibid., p. 312. [7] Ibid.

fore resists strenuously 'the raising of technical objections to political proposals'.[1]

That there is an element of truth in some of these suggestions cannot be doubted. 'Scarcity economics' is certainly known in the East by the company it often keeps in the West; and there have indeed been periods in the history of the U.S.S.R. when 'the raising of technical objections to political proposals' has in fact had definite counter-revolutionary implications. But on the whole it hardly appears very plausible to explain the Soviet attitude to the problem exclusively, or even primarily, in terms of such factors as the 'Bolshevik temperament' and the *idées fixes* of Soviet planners. That attitude—and, be it added, the changes which are taking place in that attitude—can, as it seems to me, be more readily explained in terms of rather less elusive causes.

It is hardly surprising that the problem should not have been given priority in the first ten or fifteen years of the Soviet régime, when the main debates were concerned with the forcing through of the industrialization of the economy. The basic questions at issue then related (and to a large extent still relate) to the rate of investment—i.e. to the allocation of resources between production for the present and production for the future—and to the manner in which the new capital goods produced were to be allocated between the main departments of the economy. The very high rate of investment which was decided upon, and the great emphasis which was laid on the expansion of the capacity of heavy industry, meant that the rate of expansion of the consumer goods industries was relatively slow. Under such conditions, the problem with which we are now concerned was evidently a comparatively unimportant one—and also, of course, a comparatively easy one to deal with. 'The alternatives that can appear on the economic agenda at any one time', as Mr. Dobb has said, 'will themselves be conditioned by the means available. . . . When a country is still very poor, it will be a matter of producing one type (or at most very few types) of a narrow range of articles of prime necessity. . . . The smaller the variety in production, the more obvious and the less controversial is likely to be the decision about what are the essential priorities.'[2] The pursuance of such a policy implied, of course, that 'consumers' preferences', in the sense in which this term is generally used in the West, were not being 'rationally' satisfied. Instead of producing shoes and motor cars simultaneously in the precise proportions which the free play of 'consumers' sovereignty' would have theoretically secured in a competitive capitalist economy, the

[1] Ibid. Cf. pp. 301–2, where Mr. Wiles says that Soviet economists who advocate a uniform CRE throughout the whole economy are 'seeking to impose a restraint upon the government's economic autocracy, and the question is political dynamite'.

[2] M. H. Dobb, *Soviet Economic Development Since 1917*, p. 19.

Soviet planners waited until there was a reasonable quantity of shoes on the market before producing any cars for private sale at all. But at least so far as what Mr. Wiles calls the 'larger choices' were concerned, a situation was gradually brought about in which, as he puts it, 'the big broad categories such as investment goods and consumption goods are . . . correctly priced in relation to each other, perhaps more correctly than under "capitalism" '. 'If we consider sufficiently broad categories', says Mr Wiles,

> the relations are rational enough, *indeed perhaps more rational than elsewhere.* Investment goods are cheap, the turnover tax makes consumption goods dear. Miners get high wages, shop assistants low wages. The skilled and the hard-working prosper, the idle and incompetent suffer. The output of steel rises more swiftly than that of cotton. Nothing could be more sensible, considering the ends the State has set before itself.[1]

And when the possibility eventually emerged of securing a more rapid rate of increase in the output (and variety) of consumers' goods, the attention of the Soviet planners did in fact begin to turn, to a much greater extent than previously, towards the problem of securing a higher degree of 'rationality' in the application of resources to the achievement of the ends embodied in consumers' preference schedules. When there came to be more to divide, the question of producing that particular assortment of consumers' goods which consumers from time to time most preferred naturally began to assume more importance.

Mr. Wiles's article was written before the appearance of some of the recent documents in which certain aspects of this question have been considered, and he was accordingly still able plausibly to argue that Soviet 'rationality' extended no further than the 'larger choices'.[2] But Stalin's *Economic Problems of Socialism in the U.S.S.R.* was before him, and it is perhaps a little surprising that he did not see its significance in this connexion. He confines himself to two quotations from this work, one relating to the question of whether the distribution of labour between the different branches of the economy is governed under socialism by the 'law of value',[3] and the other relating to what Stalin calls 'the confusion that still reigns in the sphere of price-fixing policy'.[4] But Mr. Wiles does not mention what is surely the really important point—that Stalin's argument as a whole was designed primarily to assist in overcoming this 'confusion' by drawing the attention of the planners to certain 'economic realities' (as we in the West might call them) which confronted them. What Stalin was doing, in effect, was to discourage the idea that the

[1] Wiles, op. cit., p. 315 (Mr. Wiles's italics).

[2] Cf. ibid., p. 315: 'The irrationality is micro-economic only. Soviet economists only trouble about the larger choices.'

[3] Wiles, op. cit., pp. 310–11; Stalin, *Economic Problems of Socialism in the U.S.S.R.* (English edn.), pp. 27–29.

[4] Wiles, op. cit., pp. 296–7; Stalin, op. cit., pp. 24–25.

Soviet government can 'do anything', that 'nothing is beyond it'[1] (particularly in 'the sphere of price-fixing policy') by emphasizing the existence and importance of certain 'restraints upon the government's economic autocracy' of precisely that general type which according to Mr. Wiles the 'Bolshevik temperament' would not tolerate.

A key role in Stalin's discussion was played by his analysis of the operation of the 'law of value' under socialism. Mr. Wiles says that when Marxists 'speak of the "law of value under socialism" . . . they simply talk nonsense, since on the one hand the law of value cannot refer to exploitation, which has been abolished, and on the other the problem of choice is not recognized'.[2] It is true, of course, that the Classical and Marxian 'law of value' was mainly used as a tool for the analysis of a particular form of society in which 'exploitation' took place and in which the allocation of scarce resources was carried out per medium of the price mechanism. But the 'law of value' itself was simply a statement postulating the existence of certain 'objective necessities' which were held to determine the relative exchange values of 'commodities'—i.e. of goods produced for sale on some sort of market by producers operating more or less separately from one another. Mr. Wiles does not suggest any good reason why we should not talk in terms of the continued existence of these 'objective necessities' in a socialist economy *in so far as the production of 'commodities' is still carried on there*, even though 'exploitation' has been abolished and the allocation of scarce resources is largely carried out on the basis of a central plan. Given, for example, that the goods exchanged between the agricultural and industrial sectors of a socialist economy can legitimately be classified as 'commodities' in the sense just indicated, it surely makes sense to say, as Stalin does, that the 'law of value' still preserves within certain limits the function of a 'regulator' in the exchange of these commodities, and that so far as production is concerned it still exercises a certain 'influence', although no longer a *regulating* influence.[3] To put the matter in more concrete terms, by emphasizing that the 'law of value' still operates under socialism in the

[1] Stalin, op. cit., p. 13.

[2] Wiles, op. cit., p. 290.

[3] Stalin, *Economic Problems*, p. 23. Mr. Wiles (op. cit., pp. 290–1) apparently does not notice that Stalin decisively rejects the somewhat misty concept of the 'law of value under socialism' which had been current in the U.S.S.R. since the famous 1943 article. His failure to notice this is partly responsible for his suggestion (pp. 311–12) that one of the reasons for Voznesensky's dismissal was his 'positive attitude to the pricing system'. Actually Voznesensky's fragmentary published comments on the 'law of value' did little more than summarize, in a very vulgarized form, the conclusions of the 1943 document—the authors of which, as Mr. Wiles correctly points out (p. 290), were not concerned with the 'scarcity problem' at all. The article by Suslov from which Mr. Wiles quotes (on p. 312) does not in the least suggest that Voznesensky 'on balance . . . favoured the price mechanism' (p. 295, n.); in fact if anything it suggests that he was too strongly opposed to 'restraints upon the government's economic autocracy' such as the installation of anything like a 'price mechanism' would have represented.

U.S.S.R. (although to a much more limited extent and in a much more limited sphere than under capitalism), Stalin was in effect drawing the Soviet planners' attention to (*inter alia*) the following points: (*a*) that the prices of commodities sold on the collective-farm markets are 'formed on the basis of supply and demand' and that 'price movements influence the size and structure of commodity turnover' on these markets;[1] (*b*) that the State, when 'fixing a particular price-relationship between different consumer goods', must take into account 'both their value in money terms and the supply and demand of these commodities';[2] and (*c*) that it is vitally important to 'establish a correct relationship between the prices of different goods and to provide a material incentive for their production'.[3] Stalin's plea that Soviet 'business executives and planners' should take more account of the operations of the 'law of value'[4] was clearly intended to mean that they should pay greater attention to the requirements of 'objective necessities' of this type when fixing relative prices.

It is true that according to Stalin the continued operation of the 'law of value' under socialism in the U.S.S.R. is due primarily to the continued existence of a collective-farm sector of production side by side with the state-owned sector, and that with the arrival of full communism—one of the preconditions of which is now said to be the substitution of 'one all-embracing production sector' for these two more or less separate sectors[5]—the reign of the law of value will come to an end. Stalin lays down no specific rules for the solution of the 'scarcity problem' under communism: in fact he does little more than echo the traditional Marxist idea of the necessity for a 'balancing of useful effects and expenditure of labour'. He does add, however, that under communism 'computation of the requirements of society will acquire paramount importance for the planning bodies',[6] and in another place he suggests that the fact that the 'law of value' still operates is not a bad thing, since 'it trains our business executives to conduct production on rational lines'.[7] In sum, then, while Stalin is firmly and specifically opposed to 'reduc[ing] the problems of the political economy of socialism to problems of the rational organization of the productive forces, to problems of economic planning, etc.',[8] he does deliberately lay a new and important emphasis on the existence of certain 'objective necessities' of which those engaged in 'the rational organization of the productive forces' must take full account, particularly when fixing prices.

[1] *Political Economy Textbook* (Russian edn., Moscow, 1954), p. 446. Cf. Stalin, op. cit., pp. 19–20.
[2] *Textbook*, loc. cit.
[3] *Textbook*, p. 448. Cf. Stalin, op. cit., pp. 24–25.
[4] Stalin, op. cit., p. 24.
[5] Ibid., pp. 20 and 75–76.
[6] Ibid., p. 27.
[7] Ibid., pp. 23–24.
[8] Ibid., pp. 80–81.

This new emphasis, as I have already suggested, was associated with the arrival of a stage of economic development in which it had become possible to secure a more rapid rate of increase than hitherto in the output of consumers' goods. The first important signs of the arrival of this stage were the narrowing, in the 1951–5 Five-Year Plan,[1] of the gap which had existed in most of the previous plans between the rate of increase in means of production and the rate of increase in consumers' goods; and the emphasis which is laid in Stalin's *Economic Problems* on the importance of consumption. And since 1953, with the intensification of the drive to increase the output of consumers' goods, it has become quite evident that the problem of securing the 'right' relations between supply, demand, and price is receiving much more consideration, both in theory and in practice, than ever before.[2] Among a number of indications of this, the following are perhaps worth noting:

1. The emphasis placed in Khrushchov's well-known agricultural report of September 1953, and in the policy measures based upon it, on the role of prices in providing incentives for the production of certain agricultural products the demand for which was growing faster than the supply.
2. The special emphasis recently laid on the advisability of employing what Mikoyan called the 'economic lever' rather than the 'administrative lever' when exercising influence on collective-farm market prices.[3]
3. The changes in the direction of decentralization and greater flexibility which have been made recently in the planning apparatus.
4. The fact that the annual reductions in retail prices have apparently not been made indiscriminately, but have to some extent at least taken account of the supply and demand position.[4]
5. The fact that the investment controversy is still continuing, and that other aspects of the pricing problem are also being publicly discussed.[5]

[1] The directives for this plan were published in August 1952.

[2] Cf. *Textbook*, pp. 448–9: 'In fixing prices, the state takes as its starting point that it is necessary for enterprises to make a certain amount of profit, and it takes into account the quantity of particular commodities and their importance in the economy. It uses prices to stimulate the production of particular goods and to control the demand for them.'

[3] A. I. Mikoyan, *Measures for the Further Expansion of Trade, &c.* (English edn., Foreign Languages Publishing House, Moscow, 1954), p. 77.

[4] Cf. M. H. Dobb, 'A Note on Turnover Tax and Prices', *Soviet Studies*, Jan. 1953, pp. 273–4. See also a speech by Mikoyan reported in *Pravda* on 27 Apr. 1954 and translated into English in *Current Digest of the Soviet Press*, 21 July 1954, pp. 11–15.

[5] Take, for example, the following extracts from a review (in *Kommunist*, Nov. 1954, pp. 122–8) of a recent book on price-formation in the U.S.S.R.: 'The question of the principles of the formation of wholesale prices for means of production is recognised as a controversial one in our literature. There are unsolved problems here. Some economists, for example, consider that there must be no difference in the elements of price-formation

Taken by themselves, these things do not perhaps add up to very much, but they are surely significant when considered in the context of Stalin's general analysis, and in the light of such statements as the following by Mikoyan, which deserves extensive quotation:

> The law of balanced, proportionate development of the national economy that operates in our society calls for the conscious and organized co-ordination of production and consumption.
>
> Since our economy is planned, we can directly and not in a round-about way calculate demand and develop production accordingly. Herein lie the tremendous advantages of our system. But this imposes a tremendous responsibility upon the distributing organizations, for success depends on us alone, on our organization and ability.
>
> There are grave defects in the organization of trade, which hinder the further development of trade and the improvement of its service to the people. The distributing organizations do not study popular demand well enough, and they make serious mistakes in distributing goods.
>
> The task of the distributive workers is to study popular demand and actively to influence production in order to secure, in the interests of the consumer, an extended production of popular consumption goods in ranges such as the population requires.
>
> If the distributing organizations do not bring pressure to bear upon industry, if they do not protect the interests of the purchaser, this means they are ignoring the fundamental principles of Soviet trade.
>
> . . . The delivery of goods to the various districts of the country and their supply to the distributing organizations has up to now been carried out in accordance with what is called an 'agreed' range of goods drawn up at the centre in conjunction with the manufacturers. Owing to the fact that the market and the peculiarities of the popular demand for goods have not been properly studied, a number of mistakes are made when the range of goods is agreed upon. Popular demand changes, yet the agreed range of goods remains unchanged. In practice it works out that the agreed range of goods often becomes a compulsory range imposed on the distributing organizations.
>
> According to the existing terms of the agreements with the manufacturers the distributing organizations are obliged to choose goods in conformity with the agreed range. More than that, if a distributing organization refuses to take any item from the range 'agreed upon' at the centre, it does not receive in place of it an item for which there is a popular demand in the given district. Perhaps this arrangement is convenient for the lazy employees at the supply bases, but it only does harm to our trade.
>
> . . . We must put a stop to the practice of compelling distributing organizations to take goods in ranges they do not require. In this connexion the terms on which industry supplies goods must be revised, and those which impose the obligation to

for the means of production and consumers' goods groups, and that accumulations, in particular turnover tax, must be included in both sets of prices on an equal footing. The author does not throw sufficient light on this aspect of the question, presenting the existing system of price-formation as the only possible one. It must also be noted that he hardly criticises at all the defects of the existing practice in fixing prices. . . . His statement that the state, in fixing prices for particular groups of goods, stimulates an expansion of the production of goods which are especially necessary to the population, is not sufficiently clear. As is well known, we still have certain "deficit" goods, although their production increases from year to year. The author is silent on the following question: to what extent is it in order to fix prices which result in a good being made "deficit" when the scale of production is normal in the given conditions, and what must be the limits within which the prices of these goods deviate from their values?' (pp. 125–6).

take goods irrespective of the quantity remaining in stock and of popular demand must be deleted.

. . . Industry must, undoubtedly, agree to make changes and adapt production to the requirements of the market.

Distributive workers must call upon industry to organize the production of new types of goods, they must promote the sale of new goods, day by day urge industry to manufacture the high quality goods in demand by the population.[1]

All in all, then, I think it can safely be said that the attention now being given to problems of this type differs not only in degree but also to some extent in kind from the attention given to them in earlier stages of development (e.g. in the mid-thirties). Nor do I think that the recent re-emphasis on the importance of heavy industry is likely to mean any serious diminution of the attention given to it. However, it does not seem very probable than anything in the way of a 'theory' of allocation, at least in Mr. Wiles's sense of the word, will emerge as a result of the greater priority now being given to the problem. A 'theory' in this sense can only have relevance to an economy in which the appearance of a divergence between the supply and the demand for a particular good causes (or is made to cause) a change in the 'profitability' of its production per medium of an automatic (or deliberately induced) change in its market (or accounting) price, and in which changes in ouput depend primarily upon changes in 'profitability'. There seems to be little reason to expect the introduction of an organisational apparatus of this type in the U.S.S.R. What we *may* legitimately expect, I think, is an increased appreciation of the role which price plays in the adjustment of supply and demand; an improvement in planning techniques designed to render the allocation of resources among consumers' goods industries more flexible and efficient; and an increase in the importance of the role of the distributive organizations in transmitting details of shifts in consumers' demand to the producing bodies.[2] The use of price-changes to bring about short-term adjustments of supply and demand will no doubt continue to be frowned upon: at a time when the output of consumers' goods as a whole is increasing at a rapid rate, it is only natural that the planners should seek to end a shortage of any particular commodity not by raising its price but rather by keeping its price in some fairly steady relationship with cost and *producing more of it*.[3] But it may well be that the policy mentioned above

[1] Mikoyan, *Measures for the Further Expansion of Trade, &c.*, pp. 19–20, 40–41, and 43.

[2] If the obstacles mentioned by Mikoyan were removed, and increased use were made of this mechanism, this would mean that the Soviet consumer, besides possessing the negative right of veto mentioned by Mr. Wiles (op. cit., pp. 314–15), would also possess to a much greater extent than he does now the positive right of directing production according to his preferences.

[3] Cf. M. H. Dobb, *Soviet Studies*, Jan. 1953, p. 273. This suggestion would not, I think, have been viewed by Smith and Ricardo with quite the same horror as it is sometimes viewed by economists today. 'In our society', they might have said, 'if we want more of

of discriminating between different commodities when the periodical price-reductions are being made will be carried out in a more thoroughgoing manner. To take a rather obvious example, if the overall plan required a greater proportion than before of the annual output of steel to be allocated to the manufacture of tractors, the prices of consumers' goods such as bicycles and refrigerators would be reduced less than those of other consumers' goods which did not require such large quantities of steel. In addition, of course, pricing policy will no doubt continue to be used for the purpose of encouraging the consumption of certain commodities (e.g. classical gramophone records and wines) and discouraging the consumption of others (e.g. jazz records and vodka), and also in order to assist in the disposal of surplus stocks. In spite of the absence of any full-blown 'theory' of allocation, it seems quite possible that the employment of such measures as these will eventually bring about a situation in which the price-and-output relationships of all goods, and not merely of those 'broad categories' which Mr. Wiles mentions, will become 'more rational than elsewhere'.

Finally, a word may be said about one extremely important query which Mr. Wiles raises. What, if anything, can 'we who preoccupy ourselves so much with resource allocation'[1] learn from Soviet experience? Is there indeed, as Mr. Wiles suggests, 'substance in the charge that "scarcity" economics is finicky and academic'?[2] Have we in fact 'not been sufficiently concerned' with such problems as 'technical progress' and capital accumulation?[3] I think there is much truth in Mr. Wiles's suggestions here. But in seeking to mend our own ways, as in trying to persuade the Russians to mend theirs, we must always remember that there can be no fixed rules, independent of time and place, as to the priority which ought to be given to different economic problems. Presumably the only criterion which can be adopted—and it is necessarily a very rough-and-ready one—is that priority should be given to those problems the solution of which is most relevant to human welfare at the given time and place. For example, if at a given time and place it is in fact true (as the Classical economists tended to assume) that 'more substantial additions to the wealth of a nation [can] be made by increasing the volume of physical output rather than by making refined adjustments to the consumers' preference positions on the basis of a given volume of products',[4] then clearly the main problem ought to be that of 'the methods

a particular commodity the price mechanism works so that we eventually get more of it *at the same "normal" price as before*. If you can arrange things so that this final result is achieved without the short-term rise in price above the "normal" level which is characteristic of the adjustment under capitalism, so much the better. After all, fluctuations in price are often a greater nuisance than queues.'

[1] Wiles, op. cit., p. 299. [2] Ibid., p. 315. [3] Ibid., p. 313.

[4] Myint, op. cit., p. 4.

of increasing the quantity and physical productivity of resources',[1] and the 'scarcity problem' ought to be relegated to a subordinate position. If, on the other hand, the possibilities of increasing the quantity and physical productivity of resources are in fact relatively limited, and more substantial additions to welfare can be made by rendering the allocation of the given resources more 'rational', then clearly the 'scarcity problem' should be given a higher degree of priority.[2] Thus the question of whether we are too preoccupied with the 'scarcity problem', and whether the Russians are not sufficiently preoccupied with it, cannot be answered *a priori*, but only on the basis of an examination of the relevance of this problem to human welfare in each of the two economies concerned at their present very different stages of development. Above all, it seems to me that we have no right to suggest that a comparative lack of interest in the 'scarcity problem' necessarily indicates a comparative lack of interest in human welfare.[3] There are other tests of economic merit besides that of the degree of success attained in solving the 'scarcity problem'—tests which at certain times and places may be very much more important. It is the great virtue of Mr. Wiles's article that he not only makes this point in relation to Soviet economics, but also advises us to consider its relevance when we are putting our own house in order.

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[1] Ibid., p. xii.

[2] Under some circumstances, of course, it may be more proper here to concentrate upon the problem of why the possibilities of increasing the resources have become limited. Welfare may perhaps be raised to a much higher level by the removal of the barriers to the increase in resources than by a tightening-up of their allocation.

[3] Mr. Wiles in one place comes close to suggesting this when he says (p. 314) that in the U.S.S.R. there is 'no admission of "scarcity" to a central place; and therefore . . . no adequate concept of economic welfare'.

CONDITIONS OF NEW ENTRY AND THE THEORY OF PRICE

By H. F. LYDALL

THE apparent conflict between the conclusions of the deductive theory of imperfect competition and the evidence provided by empirical studies has led to a new emphasis on the importance of *potential* competition. The traditional deductive system of the Chamberlin–Robinson type is founded on short-term assumptions, both on the demand and supply sides. The conflict between this system and the results of empirical observation is seen to be largely a conflict between short- and long-term considerations: between snatching short-term advantage and safeguarding long-term interests: between a policy of catchpenny trading and a policy of building goodwill: in short, between the 'spiv' and the respectable citizen.

To resolve the conflict, Mr. Harrod has brought forward the 'long-period demand curve';[1] and Professor Hicks has developed a formula for giving due weight to the force of long- and short-run advantages.[2] I should like to push a little farther along this path and examine more closely the meaning of potential competition, the long-run demand curve, and the associated concepts.

In the traditional theory the firm's demand curve is drawn to represent the various quantities that can be sold at different prices, on the assumption that there is no change in the number of firms in the market. It has been recognized that, even in this context, there can be two types of demand curve: (1) when the price and output policies of competing firms within the 'group' are independent of one another; and (2) when competing firms react to any price change by one firm by adjustments in their prices or outputs. But these two variants are both short-term demand curves. In neither case does the *shape* of the demand curve reflect the possibility of new entry. *Actual* new entry is assumed to cause a *shift* in the demand curve to the left; no allowance is made for the effect of *potential* new entry. The consequence is that the behaviour of a firm operating in an imperfect market is made to seem strangely short-sighted and improvident, the victim of blind forces within and outside itself, which push it into a position of high cost, low output, and excess capacity.

But what if firms are not short-sighted and improvident in their pricing policy? Supposing they give due weight to their long-term interests, how will their policy be determined? Let us look at a diagram. In Fig. 1, a

[1] *Economic Essays*: 'Theory of Imperfect Competition Revised'.
[2] *Oxford Economic Papers*, vol. vi, no. 1, 'The Process of Imperfect Competition'.

firm with a short-run average cost curve SAC (cost in this case excluding all profit, even 'normal' profit) has a demand curve D_1. If it is to maximize its profits in the short-run, i.e. without thought of the potential effect of new entry, it will charge a price of P_1. But at this price it will stimulate new entry and its demand curve will be pushed back to, say, D_2; and under the new conditions it will be impossible to make so much profit. As D_2

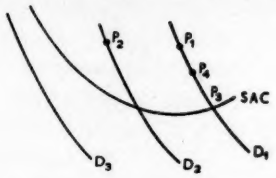


FIG. 1

is drawn in the diagram it is still possible to make a profit—the maximum profit being at the price P_2—but there is no guarantee that this price will not stimulate further new entry, until the demand curve moves completely to the left of SAC. If this were to happen short-term greed would result in long-run ruin.

It seems that the obvious policy for a sensible firm is to limit its price to a level at which there will be no new entry and no leftward shift in its demand curve. Even at the price P_3, where our firm is just breaking even, it will be better off than if it allows the demand curve to shift to D_3. But is there not some point on the curve D_1 at which price is in excess of cost and yet no new entry will be provoked? This, it seems to me, is the heart of the problem. If there is a point, such as P_4, at which profits can be made *and maintained* our firm will surely choose this price rather than go any higher. I call this price the 'no-entry ceiling price', since it is the maximum price which can be charged without provoking new entry.

At what point will the no-entry ceiling price be found? Formally, the answer is that it will be just below the minimum point of the long-run average cost curve of a potential new entrant. But this cost curve must be assumed to include 'normal' profit to the new entrant, where normal profit is defined as that level of expected return on the new entrant's capital which will just be sufficient to induce him to invest it in this direction. We shall distinguish cost curves which include normal profit in this sense by the symbol C', while curves which contain no profit will be written C. If all firms have identical cost curves, as Chamberlin postulated in his 'heroic' assumption, P_4 lies at the minimum point of each firm's long-run average cost (including normal profit) curve. Fig. 2 shows LAC' in relation to SAC, on the assumption that all firms have identical cost curves. It is clear that, on this assumption, the maximum price that can

be charged without stimulating new entry is the price which just covers cost and normal profit. If all firms pursue this policy we have the same situation as under perfect competition: price will be at a minimum, profits no more than normal and output at the optimum.

A priori there is more reason to believe that firms will pursue the above-described policy than that they will follow the short-sighted policy

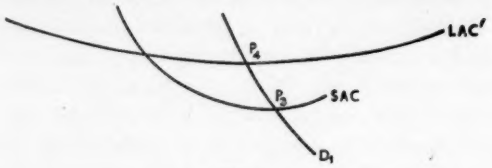


FIG. 2

of raising prices, stimulating new entry, and so losing part of their market. Better to stick to a steady income than to unloose the devils of competition. And it seems that this is the solution to which Mr. Harrod is driving in his recent essay. For the long-run demand curve is supposed to show the ultimate effect on demand of any particular price, when account is taken of long-run adjustments in supply. Unfortunately, Mr. Harrod has given his long-run demand curve a tilt—presumably, to conform with the assumption of market imperfection—and he must therefore end up with the same tangency solution as was given by the traditional theory, in which excess capacity is revealed. The long-run demand curve, however, is much flatter than the short-run curve and the remaining 'excess capacity' may hardly seem worth worrying about.

To be strictly logical, the advocates of a long-run demand curve would have to make it horizontal. For, since any excess over normal profit is assumed to attract new entrants, and since all firms are assumed to have identical cost (C') curves, any increase of price above its minimum point will stimulate new entry and bring the price down again. It is possible, perhaps, to avoid this conclusion by making the further 'heroic' assumption that all the firms in the group—both new and old—have identical short-run demand curves. In that case, the entry of one extra firm will shift all demand curves to the left and it will be impossible, by definition, for a new firm to sell at the minimum price, since its demand curve will be to the left of the minimum point on the cost curve. The long-run demand curve traced out on these assumptions is, however, no longer independent of the supply side, but follows identically the path of the long-run cost curve. *Any* point on the latter curve is compatible with equilibrium; no single point is a point of stable equilibrium. Price and cost are not merely equal but identical, and the theory vanishes.

Once we reject the 'heroic' assumptions of identical demand and cost curves we free ourselves from the bonds of tautology as well as from many cramping and misleading conclusions. In the real world no two firms have identical cost curves either in the short- or long-run, nor identical demand curves. Mrs. Robinson, it is true, recognized explicitly that cost curves are not identical—as, indeed, everyone must do—but she boxed the compass by postulating that the cost curve should include rent. This brings us back to the tautology that all profits are 'normal' profits. What was overlooked was that firms have as much incentive to maximize their rents as to maximize their profits. Moreover the rents cannot be taken as 'given': they are the product of policy, as much the result of monopoly as of superior efficiency.

The problem facing a firm is how to maximize its surplus of revenue over cost. If it has regard to its long-term interest it will fix its price at a level at which it maximizes this surplus without stimulating new entry. If the minimum point on the long-run average cost curve (C') of a potential new entrant is above the point P_3 (in Fig. 2) at which the existing firm's demand curve cuts its average cost curve (C) it will make a surplus: otherwise not.

We should note in passing that the relevant question for a new entrant is *not* whether existing firms are making above-normal profits, but whether they are charging prices at which the *new entrant* can make above-normal profits. On the assumption of identical cost curves the two criteria are equivalent; but once we are freed from this unreal abstraction we can see the importance of the distinction. Mr. Harrod's model leads to the paradoxical result that no firm can afford to make more than normal profit if it wishes to stave off new entrants. In our model, however, the limit is in the *price*, not the *profit*. The distinction is important because at the same price-level one firm can make much larger profits than another: and this is the essence of the struggle.

The crucial question in the determination of price is the cost (and demand) conditions of new entry. In perfect competition there is no problem of demand, *ex definitione*; but there are still differences in cost. If established firms have lower cost curves than new entrants their surpluses will be greater. If we choose, we may resolve these surpluses into 'normal' profits—equal to the profits required to induce new entry—and rents. The rents may arise from greater efficiency, from longer experience, from special facilities, or from pecuniary advantages. Larger firms will generally have an advantage in several of these respects and may be expected to make larger profits per unit of capital invested. There are also cases on the other side where smaller firms, having greater flexibility or control, can be more profitable. But under perfect market

conditions existing firms have no power to influence the cost of new entry. It is this power, not the sloping demand curve as such, that marks the essential difference between monopoly and competition.

When markets are divided, the cost of new entry is not simply the technical cost of production: it is necessary also to find an outlet for the product; and this costs money also. Moreover, the cost of launching a new product on the market depends on the policy of existing firms. If they are well entrenched, if they have built up a strong goodwill over many years and are currently spending large sums on advertising and selling arrangements, a potential new entrant has to budget for heavy costs of breaking into the market. Either he must plan to spend a large initial sum on advertising and selling; or he must be prepared to start on a modest scale and work up his market slowly over many years, perhaps at a loss for much of the time. If he chooses the latter course he will be unable to build a plant of optimum size to start with and will probably have higher production costs as a consequence. If he chooses the former, he must be possessed of a large capital fund from which to finance not only a large plant but a large selling outlay. If he has no previous experience of the market he will find it difficult to raise the necessary capital; for the risks will be proportionately large and investors will be unlikely to commit their funds to such a venture.

All of this means that under imperfect competition existing firms may be able to fix a price at which they make considerable surpluses without danger of attracting new entrants. These are the fruits of monopoly. And here we see what it is that is in common between monopolistic competition, based on market imperfection, and the old-style monopoly based on control of raw materials or of a legal patent. For in both cases the essence of the advantage lies in the power to exclude new entrants. This power is never absolute: all products have their substitutes and no monopolist can raise his price without limit. There is almost always a price at which it will be profitable for new entry to take place: but this price may be high enough to yield rich profits to the monopolist.

If we look at the pricing problem in these terms we shall see that there is nothing surprising in the tendency of monopolistic firms to limit their prices to what they regard as a 'normal' level. This level is somewhere in the region below the no-entry ceiling. It is not necessarily a fixed point, for it fluctuates with the conditions of new entry, which themselves depend on the policy of the existing firms. But, given all the conditions, there will be a 'normal' price to which serious firms which have their long-term interests in mind will limit themselves.

It may be said that this is all very well for oligopoly, where firms are conscious of the danger of new entry, but has no application to the 'large

group'. I do not accept this objection, for the following reasons. The so-called 'large group' is not a homogeneous field. Too often the assumption has been made that when a new firm enters a 'large group' all existing firms are affected equally, and hence in negligible degree. But, in fact, the large group is merely a loose network of competing cells. When a new firm comes in, its competition impinges directly on those firms which are closest to it: they form a small sub-group within the large group and they take the full force of the new entrant as sharply as any oligopolist. The misunderstanding of the position in the large group arises from an implicit assumption that competitors are 'equally spaced' and that a new entrant is likely to place himself 'half-way in between' several existing firms. If all the firms were making almost identical products and selling at the same price-level this might be so; but, in manufacturing industry at least, the actual situation is that a 'large group' contains a wide variety of products and price-levels. Within each sub-group of this large group there is the makings of an oligopoly. If any firm raises its price above its own ceiling level it will attract the attention of a potential competitor, not so much from *outside* the large group, but more probably from a firm already operating in another part of the group. Such a firm, seeing a chance to sell a product successfully at a lower price than the price-raising firm, will step in with a product, not different from the price-raised product, but as near to it in quality as possible. This is the sharp and painful form of new entry that each competitor in the large group must try to avoid.

Under imperfect competition each firm is the monopolist of its own product. This is true of the large group as of the small. It must not be assumed that because in 'normal' circumstances it pays firms to differentiate their products, and to put as much distance between themselves and others as they can, that they will always pursue this line. The 'normal' circumstances are those in which each firm keeps within the no-entry ceiling: but if it oversteps that limit it will attract the attention of competitors who can easily produce a product very similar to its own, and at a lower price.

We may thus distinguish various degrees of new entry under imperfect conditions. Their importance to a particular firm depends on the 'distance' between it and the new entrant, as measured by the degree of substitution between the products of the two firms. Thus, for example, a firm selling cars will be affected by each of the following types of new entry, listed approximately in diminishing importance:

1. Another car manufacturer produces an almost identical model at a lower price.
2. Another car manufacturer produces a different model with its own peculiar attractions.

3. A new firm enters the motor-car industry.
4. A firm making motor-cycles produces a new type of motor-cycle combination.
5. Public transport services are improved or cheapened.
6. New or cheaper forms of entertainment or leisure occupations are introduced.

The larger the group the less attention each firm is likely to pay to the more remote forms of new entry: the smaller the group the wider the range of sensitivity of each of its firms. A pure monopolist may well keep a watchful eye on developments in industries very far, in the normal sense, from its own. In all cases, however, the final check on the individual firm is the danger that one of its immediate neighbours will step over the boundary fence and start competing in its territory. This is as much a form of new entry as any other.

FIG. 3

In many industries, which are not strictly oligopolies, there is a development of price leadership; and this has the same effect on prices as oligopoly. A price leader may emerge in any industry, even a fairly large group, in which one firm controls an appreciable proportion of the trade. This firm then begins to take a view of the wider interests of the industry as a whole. It becomes concerned to prevent new entry into the industry and, as a consequence, may limit its prices to a level at which such entry is unprofitable. If this happens, all the smaller firms must necessarily follow suit, since, if they attempt to charge higher prices, they will provoke the price leader to enter their part of the field with a similar product at lower price.

Let us consider further the geometrical implications of this theory. In Fig. 3 we have drawn two types of long-run average cost curve. The first, LAC'_H, is an *historical* curve of a particular firm which entered the industry on a small scale and gradually grew over the years to a much larger size. The costs covered by this curve include the normal profits appropriate to the firm's investment decisions at each point in its actual process of growth. When it first entered the industry these normal profits were, of course, the same as the normal profits required to induce new

entry; but in the later phases of growth the normal profits of expansion would not necessarily be identical with the normal profits required by a new entrant intending to start on the same scale of production. LAC'_H does not, therefore, represent a set of cost-output possibilities existing simultaneously at any one point of time. This distinction, though important, has seldom, if ever, been recognized. It appears that most economists, when drawing long-run average cost curves, have had in mind the *historical* concept; but when they come to define their cost curves they usually suggest that they represent cost conditions immediately *available* to any firm that cares to enter the field. If these two curves were identical, there seems no good reason why any firm should build a plant of less than optimum size: the *minimum* scale of operation would be the *optimum*; and only the right-hand upward-sloping section of the cost curve would have practical importance.

It depends, of course, on what is included in costs. Generally speaking, costs are assumed to include advertising and selling costs as well as production costs. It is possible, if we exclude advertising and selling costs, to suggest a situation in which, while the long-run average cost curve is falling, new firms do not enter the industry at the optimum level. The reason is that, although they could *produce* at a lower price, they would be unable to *sell* all they could produce; hence there would be no purpose in producing on such a scale. But if we include advertising and selling costs in costs, as we are logically forced to do, then we must assume that each level of output incurs sufficient costs of this nature to enable the firm to *sell* its output as well as to *make* it. Thus to each short-run cost curve there must correspond an appropriate demand curve which at least gives 'normal' profit over costs. And the costs must include all that is necessary to provide such a demand curve for the product, as well as covering the cost of production as such.

On these assumptions, the *available* long-run cost curve must always in practice be constant or rising, since no firm in its senses would deliberately choose to establish itself on a small scale with high average costs, when it could *as freely* choose a larger scale at lower costs. The essence of the situation lies in the degree of freedom with which a firm may choose its scale of production. Economists have frequently assumed that a firm can raise as much capital as it wishes at 'market' price. This is quite unrealistic: in fact, the principal difficulty facing any new firm, or any firm that wishes to expand, is the problem of raising new capital. Most of the capital must usually be found from internal sources and only a minor proportion, at best, can be borrowed from outside. The more a firm tries to borrow in relation to its proprietors' capital the higher the cost of borrowing, until ultimately the rate of interest reaches, in effect, infinity.

Hence a new firm cannot 'freely' choose any point on the long-run average cost curve, unless we allow for the rising cost of borrowing in the cost curve itself. In that case the curve will be rising from the point of new entry onwards.

The *available* cost curve of a potential new entrant is drawn in Fig. 3 as LAC'_A. This curve, which includes the normal profit of new entry, shows the minimum average costs at which outputs of various sizes can be produced by a new entrant. The level of output chosen will depend on the price-level at which the output can be sold; and this depends very largely on the prices charged by existing firms. If we neglect for the moment the differentiation of the products and assume that each firm sells an equivalent quality of product at a common price, then established firms can prevent new entry if they fix their prices at any point below the minimum point of the *available* cost curve. This is the no-entry ceiling price and is marked on the diagram by the line *PP*.

It is most important to understand that, while the no-entry ceiling is an effective limit to price under any given conditions, the position of the ceiling itself is by no means fixed and unalterable. In fact, the essential point of monopoly is to be able to influence the position of this ceiling. When a monopoly buys a patent it raises the ceiling; when a monopolistic competitor expands his advertising outlay he also raises the ceiling. The latter effect is well known in those industries in which consumer advertising is particularly marked. A widely advertised product can usually command a 'premium' over its unadvertised equivalent: in other words, advertising creates a barrier to new entry and as a consequence raises the price which can safely be charged without provoking new entry. The effects of advertising are threefold. Firstly, they add to the costs; secondly, they raise the ceiling; and thirdly, they usually—but not always—expand the market. The market may either be expanded in total, each firm taking its proportionate share; or the firm which advertises with most success may take an increasing share. In either case the position is represented diagrammatically by a shift of the firm's particular demand curve to the right. But even if there is no change in the market it may still be profitable to advertise, if the price ceiling rises more rapidly than average cost.

With the help of the above analysis it is possible to throw new light on some of the vexed problems of price theory. Take the question of the so-called 'full-cost' pricing method. This can now be understood as an unconscious application of the no-entry ceiling price. The position facing a firm in any given market conditions is represented in Fig. 4. *SAC* is its short-run average cost curve (excluding all profit); *PP* is the no-entry price ceiling; *DD* is the firm's demand curve. So long as *DD* is fairly inelastic within the relevant range the price will always be fixed at the

ceiling and no lower. At this price the output will be *OR* and average cost *CR*. If the demand curve *DD* shifts slightly either to the right or left the price will remain unchanged and the average cost will vary inappreciably. Hence the proportion of *PC* to *CR* will be fairly constant. Here, in actual experience, lies the pragmatic justification for the constant

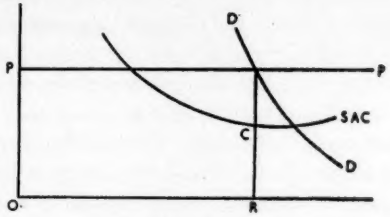


FIG. 4

proportionate mark-up rule. The mark-up has been found by experience to be the maximum that can safely be charged; and since it is an exceptionally easy rule to apply in practice, it is extended to all similar products or similar situations. As an approximation to the ideal of profit maximization it is clearly quite reasonable.

Next, let us consider the 'kinked' demand curve. This is an attractive analytical concept but it fails to give us a full explanation of the pricing process. Its weakness is that it offers no explanation of how the kink came to be fixed at any particular level. It has been found necessary, therefore, to assume some 'conventional' basis for the point at which the kink occurs; but this amounts to saying that prices are what the firms in the market think they ought to be. The result is a barren theory. However, on our interpretation, the kink is clearly the point at which the no-entry ceiling cuts the firm's demand curve; and its position is determined by the objective conditions surrounding potential new entrants.

Thirdly, there is the question of the relevance of the marginal approach. Here we must say that our analysis, while formally consistent with marginalism, makes marginal calculations of little or no practical significance. Since the demand curve, *DD*, is usually very inelastic in the region to the right of *PR*, the marginal revenue of increased output will normally be less than its marginal cost. Marginal cost, for most firms, is likely to be at least as high as average variable cost; and this, in turn, usually accounts for between two-thirds and three-quarters of selling price. In such circumstances, the demand curve would have to have an elasticity of at least 3 before price-cutting would be justified. Firms which persistently find themselves in this situation will not find much profit in attempting to make marginal calculations. They will know that what really

matters to them is the position of (1) the price ceiling, (2) the demand curve, and (3) the average cost curve. Movements *along* an existing demand curve are generally out of the question. Therefore attention will be concentrated on how to *shift* the demand curve to the right without altering price, or on how to increase the margin between the price ceiling and cost without loss of market. It is formally possible to express these calculations in marginal terms: for example, we may ask, 'By how much will sales increase if price remains constant and we spend £1 extra on advertising?' But the marginal analysis is strictly relevant only to continuous functions, and is not very helpful in a case such as this, where the changes are discontinuous and lumpy. It would be silly for a big firm to spend £1 extra on advertising: it must be a large sum or nothing. The same applies to product variation and technical change: the choice lies between a few well-defined positions, with large gaps in between.

Hence it is not surprising that most firms fail to think in marginal terms. Even in the cases where firms do calculate the probable effects of price variation, the change in price is usually of some appreciable size, and is associated with changes in marketing strategy, and sometimes with the technical conditions of production. While it is reasonable to accept profit maximization as the ruling motive in the business world, marginalism is unhelpful in the presence of discontinuities. And discontinuity is the rule rather than the exception.

What light, finally, does our analysis throw on the theory of profit? This theory has been much confused as a result of a gradual shift in the economist's use of the term away from its fundamental accounting sense to some more abstract definition. The latter usually ends in a tautology. If we limit ourselves to the accounting sense, then our analysis shows that the level of profits depends on the strength of the obstacles to new entry. Perfect competition corresponds to a condition of perfectly free entry in which the costs facing a new entrant are solely the technical costs of production—in a perfect factor market—and the 'natural' risks of the trade. As soon as firms already in the industry begin to monopolize the factors of production—including technical knowledge—or to pursue policies which increase the risks to new entrants, the no-entry price is raised and the level of profits correspondingly. Hence if we take the profits obtainable under perfectly competitive conditions as our norm, the profits of monopoly, in any of its forms, are almost certain to be above normal. A possible exception to this is to be found in those industries, such as small-scale retailing, in which the monopoly element arises primarily from geographical factors, while entry is relatively free. In this case excess capacity may be of some importance and profits may be low although prices are high. But in large-scale retailing in the big shopping centres

the barriers to new entry are very real, profits are high and excess capacity is conspicuously absent.

It follows that the average level of profit, in a firm or in an industry, is in some sense a reflection of the 'degree of monopoly'. This cannot be defined in terms of the elasticity of demand, which is usually irrelevant. A precise definition would be hard to find; but it is clear that the degree of monopoly is associated with the size of the barriers to entry.

GROSS MARGINS AND EFFICIENCY MEASUREMENT IN RETAIL TRADE[1]

By MARGARET HALL and JOHN KNAPP

THE purpose of this article is to examine how far it is possible to use the data on margins published in the British Census of Distribution for 1950 to throw light on efficiency in retail trade.

I

1. Any analysis of the behaviour of a firm or industry requires clear recognition of the character of its output and of the input of the resources employed, and any empirical analysis of efficiency requires that these quantities should be measurable.

In the field of distribution statistics the application of these maxims has been hampered not only by a lack of the precise measurements needed, but also by the persistence of a certain conceptual vagueness.

Now that Census data are available for this country, a statistical groundwork for efficiency analysis has been provided. As we shall show, further progress in this field requires the collection of additional empirical data. The need for these, and the limits on what can be said on the basis of our existing information, can only be appreciated if we take care to make our concepts clear.

2. The output of a retail shop has been crudely thought of as the amount of merchandise it sells and, on this account, retail sales at constant prices have frequently been accepted as a tolerable measure of output.[2] This practice encourages a confusion between the merchandise sold on the one hand and the activity of selling on the other. It is this last which constitutes the output of retail trade. Retail output consists of a varied aggregate, not of goods but of services, such as holding stock, serving customers, breaking bulk, providing credit, and delivery. If the amount of these services did not vary much per unit of sales, the real value of retail

[1] We are indebted to the authorities in charge of the Conditional Aid Programme for making finance available for our research into distribution in Great Britain, the United States and Canada, and to the Oxford Institute of Statistics, where this project is housed, for their hospitality. We are also indebted to Mr. C. B. Winsten of the Oxford Institute of Statistics for a most valuable suggestion concerning the concept of productivity in distribution.

We owe acknowledgements to Mrs. Naomi Connelly and Miss Audrey Franklin for assistance in preparing our charts and tables.

[2] See, e.g., Henry Smith, *Retail Distribution*, 2nd ed., p. 145.

sales could still be used as an indirect measure of retail output. But there is no reason to suppose that the amount of retail service required to market, for example, £100 worth of tinned peas is the same as that involved in selling £100 worth of millinery. To take account of this obvious fact some analysts have, when measuring aggregate retail output, weighted real sales figures by the retail margins of various trades. This is certainly an advance, but the validity of this procedure depends on the assumption that differences in distribution costs *measure* differences in retail output. Such an assumption would be appropriate if one were contemplating an imaginary perfectly competitive long-run equilibrium situation. However, in the context of an attempt to measure retail output and efficiency in an imperfectly competitive and changing world, to assume that distribution cost measures distributive output is clearly to beg the very question which is at issue, for it involves saying that the ratio of output to input, i.e. 'efficiency',[1] is uniformly the same throughout distributive industry.

It is natural, in these circumstances, to seek for a way of measuring the service output of distribution directly. What is involved here has been outlined by Professor G. J. Stigler as follows:

> If we wished to construct an index of the aggregate output of retailing services, . . . we would have to know first the individual products of the industry: the amounts of storage, selling, wrapping, delivery, credit extension, and similar services supplied to consumers. The problems that would be encountered in enumerating these quantities are not different in nature, and perhaps not in magnitude, from those already faced, and solved in varying degree, in the commodity producing industries. But when one seeks the prices with which to weight these services in constructing a single index, a new problem arises. Rarely is there a separate and definite retail price differential for cash payments versus a month's credit, delivery of specified frequency, or availability of rarely purchased items. These services are usually supplied jointly in variable amounts. Is the additional obstacle of the absence of an explicit price system insurmountable? I think not. There exists an implicit price system for the components of retailing service, . . . and it could be uncovered by statistical analysis of appropriate data. . . . But to construct indexes of service outputs will be a very large task.[2]

Nor is this all. The significance of direct output measurements of the type defined by Professor Stigler is limited by the fact that they do not, apparently, make allowance for variations in the environmental setting of distributive activity. The sale of a dozen oranges in a hut at the top of Snowdon need not, when reckoned at the direct output measures of the type listed by Professor Stigler, involve a quantity of distributive output

[1] See also the discussion of the relationship between the ratio output/input and efficiency, below, p. 324.

[2] See George J. Stigler, *Trends in Output and Employment*, National Bureau of Economic Research, Inc., New York, 1947, pp. 15–16.

very much different from the quantity involved in selling a dozen oranges from a shack in Islington. The problems involved in making allowance for such environmental differences as the density of population or their shopping habits add a further formidable layer of difficulties to the task of comparing the performances of firms or trades in retail distribution.

3. Total distributive input, like aggregate output, can only be measured by appropriately pricing and adding the values of its various physically heterogeneous component parts.

The retailer's costs, his total expenses of running his business, consist of his outlay on rent, rates, capital tied up in stocks, shop assistants, light, heat, delivery, taxes, the expense of providing credit, advertising, shop fixtures and sundries, repairs, maintenance, and depreciation. In principle, we should add to this the value of the work put in by the shopkeeper, and the supply price of his 'enterprise' in running the business.

In practice, the 'gross margin', that is what the retailer charges for the merchandise he sells minus what he paid for this merchandise, is frequently taken to represent his costs. This is inappropriate in so far as the retailer is receiving an element of pure profit or is making a loss.[1]

Statistics of gross margins are sometimes broken down into the two major elements, 'operating expenses' and 'net profit'.[2] In establishments with working proprietors, which form the great bulk of retail enterprises, 'net profit' is usually reckoned without any allowance or deduction in respect of proprietors' salaries.[3] In principle, we should wish to identify three component elements of the profit accruing to proprietors, namely, (i) wages of labour and management, (ii) supply price of enterprise, (iii) pure profit—and we should wish to deduct only the third from the gross margin in order to arrive at the money value of total input. None of these three elements in 'net profit' can, as a rule, be distinguished in the available statistics.

In practice, the best that can usually be done is to take operating costs as a measure of input, judgement being used in allowing for the value of

[1] It may be noted also that the gross margin is not equal to net value added in distribution, because some of the outlays which enter into it, e.g. shop supplies and repairs, are paid to factors of production in other industries.

[2] The most useful official statistics of this kind are the biannual surveys published by the Dominion Bureau of Statistics in Canada. Their figures are secured on a voluntary basis from a carefully selected representative sample of firms.

[3] In the United States Censuses for 1929, 1933, and 1935 the wage value of proprietors' services was put at an amount equal to the average annual earnings of full-time employees in the kind of business concerned. In the Canadian Census for 1941 the salaries and withdrawals of proprietors, whose practice it was to withdraw a stipulated amount of compensation from their business, was used as the basis for estimating the value of proprietors' services, and the amounts so estimated were included in operating expenses. This last method was judged to be unsuitable for use in the United States. Both the United States and Canada have discontinued the publication of operating-expense data in their Censuses of Distribution since 1935 and 1941 respectively.

the input represented by the labour of proprietors and any other unpaid workers.[1]

A further difficulty which arises, whether the money value of inputs is given in the form of gross margins or of operating expenses, is that they will fail to correspond to real inputs where there is an element of monopsony or monopoly in the market for factors of production.[2]

4. Distribution cost is generally measured by the ratio

$$\frac{\text{gross margin}}{\text{sales}} \times 100,$$

or the percentage gross margin. In, say, retail trade as a whole, this shows what proportion of the money value of consumers' outlay is absorbed by the cost of distribution.

Now, variations in efficiency will consist of variations in the ratio

$$\frac{\text{real input}}{\text{real output}}$$

and such variations will be reflected in what we shall call the 'unit cost' of distribution.

It follows from our earlier discussion that the percentage gross margin is *not* a measure of the cost of distribution in the sense of its cost per unit of distributive output (unit cost), since this latter measure would be equal to

$$\frac{\text{gross margin} - \text{pure profit}}{\text{unit of distributive output}}.$$

It is the unit costs of distribution which are of central interest in distribution cost analysis.

II

5. To detect evidence of inefficiency in retail trade in the Census statistics, one must find data showing variations in the unit costs of distribution. Unit costs cannot be computed from the Census data.

The Census[3] contains no measurements of distributive output. It contains data on sales on the one hand, and on gross margins on the other hand. The latter is equal to the sum of distributive expenses (other than the cost of merchandise bought for resale) and profits.

[1] In the discussion which follows, the difficulties of measuring the supply price of enterprise and pure profits are ignored.

[2] This may often be the case in the distributive trades.

[3] See Board of Trade, *Census of Distribution and Other Services, 1950*, vol. ii, London, H.M.S.O., 1954, Tables 24 and 25.

Sales cannot generally[1] be used as a measure of distributive output. There is no reason to suppose that the amount of distribution services provided per unit of sales is the same in different trades. If it were, real sales would provide a measure of retail output. But there are reasons for suspecting this simple approach because there are wide and systematic variations in retail costs in different trades. There are in fact good grounds for the procedure of making inferences about comparative retail output, as a first approximation, on the basis of cost data, although these are, in principle, measures of comparative distributive input. The grounds for such a procedure are partly analytical and partly empirical in character.

Economic theory suggests that in so far as a sufficiently high degree of competition prevails in distribution, the value of the distributive outputs produced by firms in the industry will tend to be equal to the payments made by firms for the resources they use. Sufficient competition will simultaneously tend, according to theory, to ensure also that the efficiency with which resources are used in distributive industry will be equal, at the margin, in all firms throughout the industry. It follows that differences in retail costs, as between trades, can be taken to reflect the existence of differences in retail output associated with a given value of sales.[2]

On the empirical side, this interpretation of distribution-cost statistics has gained support from the fact that students of distribution have felt able, in a broad way, to account for the variations to be found in the distribution expenses of different trades by pointing to differences in circumstances between them other than differences in their efficiency.[3]

Charts I and II show percentage gross margins and data on length of stock-holding in a number of roughly comparable trades in Great Britain and the United States. The pattern of variation of the margins, and even more strikingly of stock turn, can be seen to be similar in Great Britain and in the United States. This supports the view that variations in distribution costs, as between trades, broadly speaking do reflect variations in the

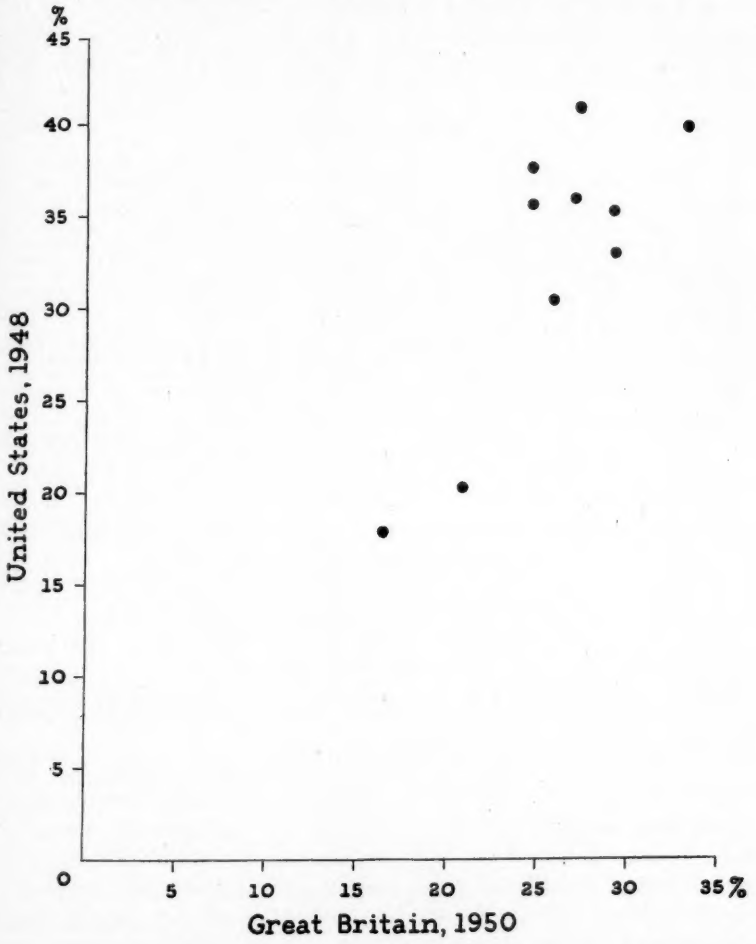
[1] But see pp. 318–21.

[2] This is the philosophy implied in the procedure of national income statisticians who, in measuring the output of the distributive trades, use sales at constant prices weighted by net value added in distribution as their output index. See, e.g., W. B. Reddaway, 'Movements in the Real Product of the United Kingdom, 1946–1949', *Journal of the Royal Statistical Society*, Series A, part iv, 1950, p. 446.

[3] Thus, Marshall wrote: 'The retail dealer's profit on the turnover is often only five or ten per cent. for commodities which are in general demand, and which are not subject to changes of fashion; so that while the sales are large, the necessary stocks are small, and the capital invested in them can be turned over very rapidly, with very little trouble and no risk. But a profit on the turnover of nearly a hundred per cent. is required to remunerate the retailer of some kinds of fancy goods which can be sold but slowly, of which varied stocks must be kept, which require a large place for their display, and which a change of fashion may render unsaleable except at a loss; and even this high rate is often exceeded in the case of fish, fruit, flowers and vegetables.' *Principles of Economics*, 8th edn., p. 512. See also D. Braithwaite and S. P. Dobbs, *The Distribution of Consumable Goods*, *passim* and pp. 270–1, and J. B. Jefferys, *The Distribution of Consumer Goods*, ch. iv.

CHART I

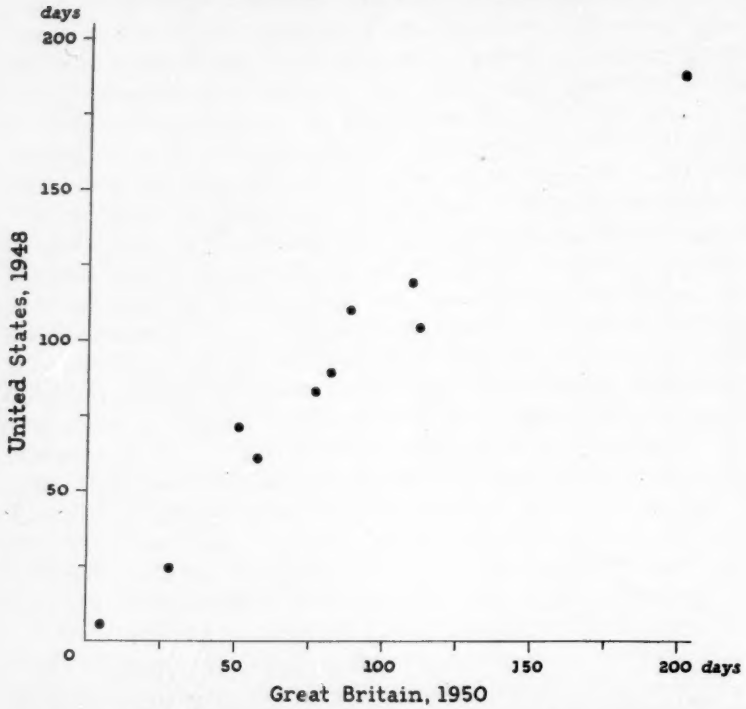
Great Britain, 1950 and the United States, 1948: Gross Margin as percentage of sales in selected comparable retail trades



amount of distributive output performed in them per unit of sales rather than variations in their unit costs of distribution, i.e. in their comparative efficiency, since it would be very odd indeed if the comparatively inefficient branches of retail trade were the same in Great Britain and the United States.

CHART II

Great Britain, 1950 and the United States, 1948: Length of stock-holding in selected comparable retail trades



We are left with the conclusion that as between trades real sales cannot be taken to measure retail output.

6. In contrast to the situation when different trades are compared, and as a first approximation, the amount of distributive output may be taken, within fairly narrowly defined trade groups, to vary proportionately to sales. It can easily be shown, however, that this rather artificial simplifying assumption concerning output measurement does not carry us nearer to establishing a relation between variations in percentage gross margins and efficiency in retail trade.

Tables I and II show, in a schematic manner, the way in which gross margins as a percentage of sales vary with the size of firms in each of the 73 minor trades which are the finest breakdown of retail trades distinguished in the British Census of Distribution. In both tables the same ten margin patterns are distinguished: e.g., \ means that percentage gross

TABLE I

Great Britain, 1950: Retail Trade—Percentage Gross Margin Patterns, by increasing Establishment-size of Firms*

	Percentage gross margin patterns†‡											
	1 ╲	2 ╲	3 ╲	4 ╱	5 ∫	6 ⌐	7 —	8 ‾	9 ◡	10 *Other*	11 *Not available*§	12 *Total*
Number of trades	4	..	1	15	4	2	10	7	..	7	23	73
Value of sales as % of total retail sales . .	4·7	..	0·3	24·9	8·4	18·0	18·4	7·2	..	9·5	8·5	100

* Except retail co-operative societies.

† The rules used in assigning trades to the margin patterns are described in a Note at the end of this article.

‡ Trades in columns 1–10 of the table are as follows: Col. 1: Other food; Men's wear; Furriers; Pawnbrokers. Col. 3: Corn merchants. Col. 4: Grocers with off-licence; Grocers with meat; Grocers with bakery goods, with baking; Grocers with bakery goods, without baking; Grocers with hardware; Butchers; Fishmongers, poulterers; Greengrocers, fruiterers; Chocolate, sugar-confectioners; Chocolate, sugar-confectioner–tobacconists; Women's underwear; Wool, art needlework; Dispensing chemists; Domestic furniture; Florists. Col. 5: Tobacconists; Men's and women's wear; Domestic hardware; Builders' materials. Col. 6: Grocers; Bread and flour confectioners, with baking. Col. 7: Dairymen; Greengrocers, fruiterers with fish; Cooked meat and delicatessen; Chocolate, sugar-confectioner–tobacconist–newsagents; Women's outfitters; Milliners; Soft furnishings, floor coverings; Leather goods; Fancy goods; Department stores. Col. 8: Tobacconist–newsagents; Boots and shoes; Drapers; China, glassware; Sports goods; Toys; Other non-food. Col. 10: Bread and flour confectioners, without baking; Off-licences; Women's outerwear; Booksellers, stationers; Jewellery, watches and clocks; Coal; Pets, pet food.

§ 'Not available' means that only two establishment-size groups are distinguished in a trade, or that no breakdown at all is given.

Source: Census of Distribution and Other Services, 1950, vol. ii, Table 25.

TABLE II

Great Britain, 1950: Retail Trade—Percentage Gross Margin Patterns, by increasing Turnover-size of Firms*

	Percentage gross margin patterns†‡											
	1 ╲	2 ╲	3 ╲	4 ╱	5 ∫	6 ⌐	7 —	8 ‾	9 ◡	10 *Other*	11 *Not available*§	12 *Total*
Number of trades	7	18	2	3	12	1	1	6	12	6	5	73
Value of sales as % of total retail sales	5·0	16·4	0·2	8·9	29·5	0·1	0·2	9·3	12·3	13·3	4·7	100

* Except retail co-operative societies.

† The rules used in assigning trades to the margin patterns are described in a Note at the end of this article.

‡ Trades in columns 1–10 of the table are as follows: Col. 1: Boots and shoes with repairs; Men's wear; Second-hand clothes dealers; Antique dealers; Pictures; Builders' materials with contracting; Corn merchants. Col. 2: Grocers with bakery goods, with baking; Fishmongers, poulterers; Cooked meat and delicatessen; General shops; Chocolate, sugar-confectioner–tobacconist–newsagents; Tobacconists; Drapers; Radio, electrical goods with repairs; Electrical goods with contracting; Booksellers, stationers; Photographic goods; Domestic furniture; Soft furnishings, floor coverings; Secondhand furniture dealers; Jewellery, watches and clocks; Leather goods; Fancy goods; Pawnbrokers. Col. 3: Newsagents; Furriers. Col. 4: Bread and flour confectioners, with baking; Bread and flour confectioners, without baking; Department stores. Col. 5: Grocers; Grocers with off-licence; Grocers with bakery goods, without baking; Grocers with hardware; Greengrocers, fruiterers; Off-licences; Chocolate, sugar-confectioners; Men's and women's wear; Wool, art needlework; Radio, electrical goods; Florists; Other non-food. Col. 6: Corsetieres. Col. 7: Other food. Col. 8: Grocers with meat; Butchers; China, glassware; Dispensing chemists; Builders' materials; Pets, pet food. Col. 9: Chocolate, sugar-confectioner–tobacconists; Tobacconist–newsagents; Boots and shoes; Women's underwear; Infants', children's wear; Domestic hardware; Other retailers of chemist's goods; Musical instruments; Sports goods; Toys; Nurserymen, garden seedsmen; General second-hand dealers. Col. 10: Dairymen; Greengrocers, fruiterers with fish; Women's outerwear; Women's outfitters; Milliners; Coal.

§ 'Not available' means that no turnover-size break-down is given in the trade.

Source: Census of Distribution and Other Services, 1950, vol. ii, Table 24.

margins fall as the size of firms increases, and / means that percentage gross margins rise as the size of firms increases; — means that percentage margins do not vary with the size of firms. The margin patterns are shown with respect to both of the ways in which sizes of firms are measured in the Census: in Table I, by the number of shops or establishments controlled by retail firms, and in Table II, by the sales-size of firms. Thus the margin patterns in Table I give a comparison of percentage gross margins taken in independent shops having one outlet or shop per retail firm as compared with the margins of chains of increasing size, while margin patterns in Table II show the variations of percentage gross margins as the turnover of firms increases. It should be noted that the dispersions of the margins around the average for each size group are relatively large.[1]

Now it is frequently asserted that because of economies of scale, unit costs of distribution will fall as the size of firms increases. Yet Tables I and II show a great variety of gross margin patterns with respect to size.[2] What can we say about this?

Percentage gross margins cannot, generally, be taken to measure efficiency even within a trade,[3] and so cannot be expected to fall with rising scale of operations, for reasons which can be classified as follows:

Suppose that all firms buy both merchandise and hired factors of production at the same prices, and also sell at the same prices either because prices are maintained or controlled or because this corresponds to the individual price policy of retailers themselves, or, finally, because of competition. The percentage gross margins of all firms will be identical, but their unit costs (which exclude pure profits) may differ. Firms having lower unit costs are more efficient. It follows that where the buying and selling prices of firms are identical, data on percentage gross margins cannot, without supplementary information on the pure-profit component of the margin, tell us anything about the comparative efficiency of firms within a trade. If larger firms had lower unit costs because of economies of scale or for any other reason, their percentage gross margins would not be any lower than those of smaller firms, but their pure profits would be higher.

If all firms sell at identical prices, but buy at different prices, say, because their buying is more efficient or on account of bulk discounts, or because they have monopsonistic advantages, firms with lower buying prices will tend to show higher percentage gross margins than those having

[1] Thus, in the grocery trade, average margins of the various turnover size groups range between 11·8 per cent. and 17·9 per cent. But among organizations having sales of under £1,000, for instance, one-quarter have margins below 10·2 per cent. and one-quarter have margins above 16·9 per cent.

[2] The difference in the distribution of trades among the margin patterns according as the size of firms is measured by number of shops controlled or turnover, is discussed below, p. 323.

[3] And even where retail sales are taken as a measure of retail output.

higher buying prices whether or not they are also more efficient in terms of the costs they incur in distributing a given volume of goods.[1] In this case, larger firms which obtain quantity discounts may show higher percentage margins even though they may have lower unit costs.

If all shops buy at the same prices, but competition in retailing is imperfect and fixed price systems are not universal, it is possible for prices to be different in respect of sales of identical goods accompanied by equal quantities of distributive service. In this situation, variations in percentage gross margins calculated on the *buying* cost of goods sold would reflect variations in unit costs or efficiency of distribution, if pure profit were nil and if prices were reduced in proportion to distribution costs in the more efficient firms.[2] Such situations may be quite widespread in practice, since imperfect competition plus limited price competition may well be common occurrences in distribution. But it must be remembered that before such a situation could be identified, it would be necessary to supplement any data on percentage gross margins corresponding to it with independent information establishing the facts concerning buying and selling prices and the degree of imperfect competition. (It will be noticed that this case is, by definition, not compatible with our simplifying assumption that sales should be proportional to distributive output, although it does imply that distributive output is proportional to the cost of goods bought by retailers.)

If different firms both buy and sell at different prices, for some combination of the reasons given in the foregoing, there is no reason to expect any systematic pattern in percentage gross margins, and no ground for connecting variations of percentage gross margins with unit costs of distribution.

It is necessary to recognize that the simplifying assumption we made earlier, namely, that the amount of distributive output provided by firms within a given trade varies proportionately with the volume of goods distributed, is itself of limited validity. Three reasons for this may be listed:

First, the amount of distributive output necessarily associated with the distribution of a given value of goods bought by retailers may vary with the composition of goods for resale. Unless, therefore, all firms in a single trade sell goods of very similar commodity composition, costs and with them percentage gross margins of shops may vary even though all shops are equally efficient.

[1] This is further explained in detail on p. 322, footnote 1.

[2] The variations of percentage gross margins *on sales* corresponding to the variations of cost and efficiency envisaged in the text are given by the formula $\frac{1}{1-c/e}$ where c equals buying cost per unit of goods sold and e distribution costs per unit of goods sold.

Secondly, the quantity of luxury service provided to consumers with goods of a given wholesale value and composition may vary in different shops within a single trade. This also can give rise to variations in costs and gross margins among firms of equal efficiency.

Thirdly, firms classified for practical purposes as retailers belonging to a single trade may assume, to varying extents, what are normally regarded as wholesalers' distributive functions. This will tend to raise the gross margins and also the costs of establishments belonging to firms which assume a relatively greater part of wholesalers' distributive functions even though their unit costs of distribution may be lower than, or equal to, those of other retailers.

It is clear from this that the Census information on percentage gross margins cannot, in itself, tell us anything conclusive about the comparative efficiency of firms even when the data refer to a single trade defined in a fairly narrow way.

Thus, whatever the gross margin patterns in Table I and Table II show, it is possible that unit costs do fall with increasing size of firm in each and every one of our 73 trades. For any particular pattern of margin variations is compatible with falling unit costs of distribution provided that the varying patterns are associated with suitable variations in buying and selling prices, in distributive output per unit of sales, and of pure profits per unit of sales as the size of firm increases. By the same token, it is possible to make assumptions which would make the observed patterns of margin variations consistent with constant or rising unit costs of distribution as the size of firms increases. This question cannot be conclusively settled without much further empirical research.

Nevertheless, detailed examination of the data on variations of margins within single trades does suggest further lines of inquiry on which investigation might be concentrated. Table I shows that percentage gross margins are constant or rise in the majority of trades as one moves from independent shops to chains with a larger number of outlets. This is quite compatible with the larger chains obtaining larger economies of scale, since where the economy consists in the chains obtaining bulk discounts they will tend to show higher or constant percentage gross margins whether or not they pass these economies on to the consumer in the form of lower prices.[1] However, these margin patterns evidently invite further investigation, since very little is known about the extent and size of

[1] The influence of quantity discounts on percentage gross margins can be brought out by making a *ceteris paribus* assumption, as follows:

Suppose that a chain has the same operating expenses per unit of a given assortment of merchandise and the same rate of net profit on turnover as an independent, thus passing on any buying economies to the consumer. Suppose that the chain obtains a quantity discount

quantity discounts, comparative net profit rates, and prices of chains as against independents.[1]

Table II shows a very different distribution of trades among the margin patterns. This is due to the fact that the classification by size of turnover has the effect of revealing the variations in margins of independent (single unit) retailers of varying sales size in considerable detail, while in Table I these variations are all compressed in the over-all average margin shown for independents. In contrast with the picture which emerges in Table I, the result of the classification in Table II by turnover size is to shift the majority of trades into categories of margin patterns which show percentage gross margins falling with size over a significant range of independent shops of smaller sizes. The idea that this range of observations in the various trades reflects variations in unit costs is supported, on the face of it, by the fact that in 31 out of 46 trades in which margins decline with increasing size of independents, over at least the smaller-size groups of the independents, the rate of stock turn increases as percentage gross margins decline.[2] This in itself is not, however, conclusive, since it is possible that

of 20 per cent. for buying one hundred times as much. Then the percentage gross margin of the chain will be higher, as follows:

	Cost of goods bought	*Total expenses*	*% Profits on turnover*	*Total profits*	*Retail sales value*	*% Gross margin*
	£	£		£	£	
Independent .	800	150	5	50	1,000	20
Chain. . .	64,000	15,000	5	4,158	83,158	23

If the chains sell at the same prices as independents, we have:

	Cost of goods bought	*Total expenses*	*% Profits on turnover*	*Total profits*	*Retail sales value*	*% Gross margin*
	£	£		£	£	
Independent .	800	150	5	50	1,000	20
Chain. . .	64,000	15,000	21	21,000	100,000	36

It follows that chains will only have lower percentage gross margins than independents if they take a lower rate of net profit or have lower operating costs than independents.

It also follows that margins will be constant where lower profit rates and/or lower operating costs happen to offset the influence of bulk discounts. Such a result will come about if conventional margins are adhered to or enforced throughout a trade.

[1] It is interesting to note that in the United States the percentage gross margins of chains were found to be lower than those of independent shops in the inter-war period. Cf. R. Bellamy, 'Size and Success in Retail Distribution', *Bulletin of the Oxford University Institute of Statistics*, 1946, pp. 330–1.

[2] The trades in question are: Grocers; Grocers with off-licence; Grocers with bakery goods, without baking; Greengrocers, fruiterers; Greengrocers, fruiterers with fish; Chocolate, sugar-confectioners; Chocolate, sugar-confectioner–tobacconist–newsagents; Boots and

the composition of goods sold in shops of different sizes in the same trade varies, e.g. the smaller shops sell a greater proportion of higher-margin goods, or they give more service. The high margins of the smallest independents are probably in fact attributable at least in part to inefficiency and imperfect competition, but there is no way of establishing the extent of this inefficiency from the Census data. Any attempt to do this would require field studies of an intensive kind.

III

7. It follows from the foregoing that 'to isolate the factors which make for efficiency or inefficiency in distribution' is a much more complicated task than the authors of a recent contribution to this journal imply.[1] The central argument put forward by Messrs. Pollard and Hughes seems to consist of the following propositions:

(i) Efficiency in distribution can be measured by distributive costs as represented by percentage gross margins.[2]

(ii) Sales per person engaged increase with the sales-size of establishments and also, though to a less extent, with the size of establishments as measured by persons engaged per shop.[3]

(iii) There is a negative correlation between sales per person engaged and percentage gross margins, both as between trades and within single trades. Consequently, 'the influence of "labour efficiency" on distributive costs can hardly be exaggerated'.[4]

(iv) As sales per person engaged depend on the size of establishments (or firms), it follows that small shops are inefficient. This is also argued directly on the basis of a table showing that 'distributive costs, as measured by gross margins, are lowest in the middle size ranges, rise with the larger size ranges, but are highest in the smallest size'.[5]

None of these propositions seems acceptable, as they involve various sorts of errors in interpretation.

shoes; Boots and shoes with repairs; Women's outerwear; Women's outfitters; Milliners; Infants, children's wear; Men's and women's wear; Wool, art needlework; Domestic hardware, ironmongery; Radio, electrical goods; Radio, electrical goods, with repairs; Electrical goods with contracting; Booksellers, stationers; Dispensing chemists; Domestic furniture; Antiques; Musical instruments; Sports goods; Toys; Builders' materials; Corn merchants; Nurserymen, garden seedsmen; Pets, pet food; General second-hand dealers. For the purposes of this analysis, the data for organizations of increasing turnover-size up to and including the group having 1·25 establishments per organization have been regarded as relevant to independents.

[1] S. Pollard and J. D. Hughes, 'Retailing Costs: Some Comments on the Census of Distribution, 1950'. *Oxford Economic Papers*, New Series, vol. vii, no. 1, Feb. 1955, p. 71.

[2] Loc. cit., pp. 71, 78–79, 86, 89.

[3] Loc. cit., pp. 73–75. Sales per person are calculated by taking two part-time workers as equal to one full-time worker.

[4] Loc. cit., p. 79.

[5] Loc. cit., pp. 78–79.

First, as we showed above,[1] it is a fundamental misconception to suppose that distributive costs, as represented by percentage gross margins, can serve as measures of unit costs or efficiency in distribution.

Second, while it is true that sales per person engaged increase with the sales-size of establishments, detailed examination of the data by individual trades shows that it is by no means always the case that sales per person engaged increase with size of establishment as measured by persons engaged per shop.[2]

Thirdly, while it is true that there is a negative association, as among different trades, between variations in sales per person and percentage gross margins, any inference that there are corresponding differences, as between trades, in the efficiency with which labour is used, is unwarranted. Nor is it correct to infer that high margins are *caused* by low sales per person. Both phenomena may be the reflection of a common cause quite unrelated to the issue of efficiency. The most obvious cases in point here are the low figures for sales per person and the high percentage margins which are both found in the various retail kinds of business in which productive activities like baking, repairing, &c., are carried on, together with retail distribution. It is clear that in these cases relative output per person is higher than the relative sales-per-person figures indicate, and the high-percentage gross margins in these trades reflect this very fact.[3] In general, the association between sales per person and percentage gross margins among trades needs to be analysed fully, by considering the determinants of each.

Moreover, it is not the case at all that there is a negative correlation between sales per person engaged and percentage gross margins *within* single trades. While it is true that sales per person regularly increase with the sales-size of organizations (firms), at any rate up to rather large

[1] See pp. 312–22.

[2] The reverse occurs in some 13 trades out of the 71 minor kinds of business distinguished in Table 11 of the Census. In these trades, which account for 24·1 per cent. of total retail sales, sales per man fall consistently as the persons-engaged size of establishments increases. The trades in question are: Grocers with bakery goods; Bread and flour confectioners; Cooked meat and delicatessen; Chocolate, sugar-confectioners; Chocolate, sugar-confectioner–tobacconists; Chocolate, sugar-confectioner–tobacconist–newsagents; Tobacconists; Tobacconist–newsagents; Newsagents; Electricity showrooms; Dispensing chemists; Sub-post offices with minor retail sales; Department stores. If department stores are excluded, these trades account for 17·8 per cent. of total retail sales.

In 7 other trades the smallest size groups (as measured by persons engaged) attain sales per person higher than the average for all employee sizes together. In 22 trades, the relationship between sales per man and the persons-engaged size of establishments is irregular.

Messrs. Pollard and Hughes show only data for retail trade as a whole, and for the Grocery group.

[3] In these trades, at least, where 'sales efficiency' is low, services rendered are relatively high. In the face of such examples it is difficult to share the scepticism of Messrs. Pollard and Hughes about the probability of finding low sales efficiency accompanied by high retail-service output (loc. cit., p. 89).

sizes of organization, it is not the case that the pattern of margin variations is regularly of the ⌊ -shaped type which would correspond to this. As Table II shows, the margin patterns with increasing turnover size within single kinds of business show a wide variety of shapes.[1]

Fourthly, the conclusion that small firms are inefficient, while possibly quite true, cannot be deduced from the evidence given, partly because the gross margins of small firms are in fact often not high in relation to the margins of larger firms within the same trade, and partly because percentage gross margins do not, in any case, provide a reliable measure of efficiency.

8. The negative tone of this article should not be interpreted as implying that the study of Census data is of no use in the analysis of retail efficiency. We endorse the view supported by the Census of Distribution Committee that:

> You cannot start to make any examination of relative efficiency until you have got something like the Census of Distribution to start from, but you have got to do a lot more work and discussion and research and investigation before you can reach any tolerable conclusions about the comparative efficiency or inefficiency in various fields . . . a Census could chiefly be justified as providing a groundwork on which enquiries into this difficult subject could more reliably be conducted.[2]

OXFORD

[1] The rules used in assigning trades to margin patterns in Tables I and II were as follows: (i) If percentage gross margins within a trade all fell within a range no more than 5 per cent. above the lowest percentage margin, the trade was allocated to pattern No. 7, *unless* the percentage gross margins consistently rose or fell with size. In the latter cases, trades were allocated to patterns Nos. 1 or 4. (ii) A minimum 5 per cent. difference at the extreme observations was also the criterion applied in deciding on the allocation of trades among patterns Nos. 2, 3, 5, 6, and 9. (iii) The definition of patterns ignores the position of the points of inflexion relative to the size-of-firm variable. The breakdowns by size shown for the various trades vary as among trades but were taken as found in the Census. (iv) The patterns 1–9 were found to be 'smooth' in the sense of being uninterrupted in 36 out of 43 trades in Table I and in 30 out of 60 trades in Table II. In the other cases, the patterns were 'smoothed' when possible, provided that the number of interruptions to patterns was not more than one in four of the total number of observations in a trade. 'Smoothing' was considered possible when, on taking the weighted average of an observation with an adjacent observation on *either* side, the interruption disappeared.

[2] *Report of the Census of Distribution Committee*, Mar. 1946, Cmd. 6764, p. 3, para. 16.

RETAILING COSTS: A REPLY

By S. POLLARD and J. D. HUGHES

We wish at present to comment on the article by Lady Hall and Mr. Knapp only in so far as it refers to our earlier paper in the *Oxford Economic Papers*, and hope to have the opportunity of discussing adequately its central argument later. Their article, concerned with the proposition that gross margins in retail distribution cannot be used as an index of 'efficiency', might appear to be labouring the obvious were it not for the stimulating analysis and useful statistics it contains. It could, with these merits, have stood on its own without introducing the doubtful polemics of the third section as an apparent justification.

We are accused of taking gross margins as a measure of efficiency in distribution; but even the closest re-reading of our paper fails to reveal such a view.[1] Our main concern was the measurement of sales per person employed, which we termed 'labour efficiency'. Here we seem to be in good company, since Lady Hall and Mr. Knapp have used the same method elsewhere.[2] Our conclusion that labour efficiency varied generally with size of turnover ('proposition (ii)') was an empirical statement, based on the Census statistics, and is confirmed by their own findings, arrived at by a more roundabout route of international comparison.[3] Our own figures show, in addition, that in most cases this correlation ceases to hold, and may be reversed, in the higher size groups.

Our conclusions were based on our Tables I and III, which our critics do not attempt to challenge; instead, they seem to refer to our truncated Table II, grading shops by numbers of employees,[4] which was outside our main line of argument: that table was, in fact, introduced merely to show the pitfalls of such a criterion for 'labour efficiency' measurement.[5]

'Proposition (iii)', the correlation between sales per person and gross margins, was again empirically derived, both as between trades and within trades. The proposition itself seems to us self-evident: higher labour costs of selling will mean, *ceteris paribus*, higher gross margins (i.e. cost to the consumer) per unit. Our purpose was to estimate the extent of the influence of one upon the other, and our statistics seemed to suggest that this was considerable. Clearly, other things are not always equal. Where

[1] The first 'proposition' attributed to us. The four page references given to this alleged statement are somewhat puzzling.

[2] 'Productivity in Retail Distribution', *E.J.*, Mar. 1955, especially pp. 72, 76, and 79.

[3] Loc. cit., p. 79.

[4] This table originally contained the most important trade groups, but had to be cut for reasons of space.

[5] *O.E.P.*, Feb. 1955, p. 75.

comparisons between trades are concerned, we have ourselves drawn attention to some of the difficulties involved.[1] In comparisons within trades we have shown the influence of stock-holding, the only other measurable factor, as a cause of diverging trends as between sales per person and gross margins.

We are accused of neglecting to examine detailed trade sub-groups, and it is alleged that in these the margin variations show a wide variety of 'shapes'. We have, in fact, dealt with this in a second article not yet published. We did not consider, it is true, that the sizes of the samples and the arbitrary division by size groups warranted a pedantic division into nine 'shapes', as did our critics (Tables I and II); instead, applying the term 'U-shaped' to all sub-groups showing lower margins in the medium sizes than at the extremes, we found that attribute to apply to thirty-one out of forty-nine sub-groups capable of statistical analysis.[2]

It seems to us that our critics have missed the whole point of our study. We were, together with most inquirers (and all consumers) concerned with the level of distributive costs, as measured conveniently by gross margins, and not by elusive distinctions between 'pure profits' (quasi-rent) and 'the supply price of enterprise', which it would be difficult to establish empirically. Our article forms an empirical study of the elements of retailing costs. Analysing these, we dealt with their labour-cost components (sections I and II), and the costs of holding stocks, including the risk element involved (section III), the only components on which information may be found in the Census. In section IV we have drawn attention to the lack of necessary information on other cost components such as rent, taxes, transport, &c.

We do not know of any statement that gross margins as such could be a measure of efficiency, and are mildly astonished to have it attributed to us. Our analysis led us to state that 'labour efficiency'[3] was an important element in total retailing costs. We find it hard to imagine that our critics would seek to deny that proposition.

UNIVERSITY OF SHEFFIELD

[1] Loc. cit., p. 73.

[2] The compilers of the Census also noticed the predominance of this trend: *Census of Distribution*, 1950, vol. ii, p. xii.

[3] In the narrow sense in which we were using it, viz. sales per person employed.

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